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Journal of the Society of Arts.

FRIDAY, JULY 9, 1869.

Announcements by the Council.

Improved Cabs.

The Council of the Society of Arts offer the following medals for improved hackney carriages specially suited to the metropolis :—

- The Society's Gold Medal for the best and most convenient open hackney carriage for two persons.
- The Society's Silver Medal for the second-best ditto.
- The Society's Gold Medal for the best and most convenient closed hackney carriage for two persons.
- The Society's Silver Medal for the second-best ditto.
- The Society's Gold Medal for the best and most convenient hackney carriage for four persons, either open or closed, or both.
- The Society's Silver Medal for the second-best ditto.

Lightness of construction, combined with adequate strength and durability, will be especially considered in making the awards.

The awards will be made after actual trials of the carriages extending over a certain period.

Communications describing the carriages must be sent to the Secretary of the Society of Arts before the 1st January, 1870, the carriages to be sent to a place hereafter to be appointed.

The Council also offer the Society's Silver Medal for the best instrument, to be affixed to a cab or other hackney carriage, for indicating the fare as between the passenger and the driver, whether by registering the distance travelled or otherwise, and which instrument shall also indicate, for the convenience of the cab-owner and of the driver, the total distance travelled during the day and the total amount earned. The instruments competing, with full descriptions of their construction, to be sent to the Society's House before the 1st January, 1870.

Competitors may, at their option, sign their communications, or may forward with them sealed letters containing the name and address of the writer.

The Council reserve to themselves the right of withholding all or any of the medals, in case none of the carriages or instruments possess, in their opinion, sufficient merit.

Subscriptions.

The Midsummer subscriptions are due, and should be forwarded by cheque or Post-office order, crossed " Coutts and Co.," and made payable to Mr. Samuel Thomas Davenport, Financial Officer.

Proceedings of the Society.

Conversazione.

The Society's Annual Conversazione took place on Thursday evening, the 1st instant, at the South Kensington Museum, when about 4,400 members and their friends were present. The company was received by Lord Henry G. Lennox, M.P., Chairman of the Council. The bands of the Grenadier Guards and of the Chatham division of the Royal Marines attended, and performed selections of music during the evening.

Free Public Libraries and Museums Committee.—Unexhibited Specimens of Art.

In the House of Commons, on Wednesday, the 30th June, Lord Henry Lennox asked the First Lord of the Treasury whether he would authorize the necessary steps being taken to promote the systematic circulation to local museums, libraries, and institutions of the United Kingdom, especially in Glasgow, Dublin, Edinburgh, and the great hives of Midland industry of the—he would not say superfluous—but duplicate and unexhibited specimens of Art, Science, and Literature now deposited in the national museums and galleries of the metropolis, especially the British Museum and National Gallery.

Mr. Gladstone said the government were very favourable to the object contemplated by the question. Some things had already been done in that direction, especially in the South Kensington Museum. Within the present month, the Treasury had received notice from the trustees of the National Gallery that two collections of Turner's drawings—and since that a third collection—had been made up to be deposited in centres other than London.

India Committee.

The seventh conference on Indian subjects was held on Friday evening, 11th June, John Cheetham, Esq., President of the Cotton Supply Association, in the chair. The subject discussed was " Cotton Cultivation and Supply."

The Chairman, in opening the proceedings, said in the course which this Society had taken during the present session of discussing important questions connected with fibres and other materials, in which the industry of this country is very deeply concerned, he was glad to find the important one of cotton had not been overlooked. It was now six years ago since he had the honour of reading from this platform a paper on the supply of cotton to this country. At that time the American war had broken out, and the operatives of his native county, Lancashire, were in a state of great destitution and distress; and this Society, very wisely and properly, as he thought, brought this question before the public, in order that some measures might, if possible, either by private enterprise, or where government was concerned, by governmental authority, be employed to increase the supply of that material. He was told afterwards by many of his friends that the paper he had read, and the conclusion he had drawn of the American war, limiting our supply of cotton for a long period, was somewhat too gloomy and too highly coloured in an adverse state. He was sorry to say in fact it had not proved so; and at this moment, when eight years had passed since the commencement of that war, the state of Lancashire with regard to the operations connected with the cotton manufacture was one of great misgiving, and grave doubt and anxiety to all concerned. Employment had been already seriously curtailed, many of the most active and energetic operatives were emigrating to America and our colonies. We had before us, looking at the present year, an inadequate supply of cotton; and even for another twelve months there was not any prospect of any very large increase, sufficient materially to reduce the price, and thereby stimulate the consumption of the manufactured article. In this state of things the question was forced upon us as to the future course of that manufacture; and need he say if that were to go down, if our rivals on the Continent and in America were to any considerable extent to supplant us in the production of cotton goods which this country has hitherto supplied to the markets of the world, a very serious blow would be given to the national strength of Great Britain. Now, in that paper which he read six years ago he stated what was the actual position of the cotton supply at the close of the year 1860, just previous to the commencement of the American war; and without troubling them with figures in detail he would state the per-centage, up to the close of 1860, of the whole cotton supply was, from the United States, 85 per cent., so that at that time the employment of our people depended upon the continuance of the growth of cotton in the Southern States of America. Now, if we looked at the actual state of things in America, we found the disturbance which that war occasioned by the breaking up of the system of slavery on large plantations, worked by slave labour, had led to a complete change in the mode of cultivating cotton—a change which, while it might hereafter give us greater certainty in the supply would for a long time to come very much limit the quantity produced. Previous to the American war, the cotton planter was a man with large estates in his possession; upon those estates he employed hundreds or thousands of slaves, and only employed them in the cultivation of cotton. By means of this forced labour, and the discipline he employed, he could depend (the seasons permitting) upon a steady and large increase every year; and so in 1860 we closed with a production of cotton in the States of America never equalled before, and which would take many long years before we see it again. For what now was the change? Instead of these large plantations, and large numbers of slaves, the plantations were cut up into small farms—not so small as in India, but much in a similar way, and the American planter, instead of cultivating wholly cotton, cultivated food crops, also like the Indian ryot, and so it was inevitable that, whatever might be the price, the increase of the supply from that country would be slow and gradual. Now at the present moment the expectation of supply from that country was supposed to give us about 31 per cent., that was in place of the 85 per cent. upon which we formerly relied. We should not, for this year, obtain more than 31 per cent. The next countries to which we were accustomed to look were Brazil and Egypt. In 1860 they sent 8 per cent. of our consumption; this year we expected 24 per cent.; so that we saw that two countries had made a considerable increase. Egypt, three years ago, quadrupled her supply of 1860; but she had gone back, and for the last two years had not given more than double the supply of 1860. There were many reasons given for that. The main one, he believed, after all, was what was found the great difficulty of every country, except India, and that was the want of labour. Many people supposed that cotton could be easily grown in a climate and soil suited for it; but it was a cultivation which required a large amount of labour and attention, and in no country but India did we find an adequate amount of labour available for extending the growth of cotton to the amount we require. Then some of our own colonies were supposed to be capable of increasing their very limited supply; but, he was sorry to say, he had not been disappointed, because he never expected we should increase the supply from that source. With regard to the West Indies, which formerly sent a considerable supply, the cultivation of cotton had been totally superseded by that of sugar; and, notwithstanding the very high price given for cotton, it had produced no increase of cultivation there whatever. So also with regard to our colonies of Australia and Queensland, which his hon. friend the member for Manchester took so large an interest in, though he admitted that Australia had, during the last few months, sent a larger quantity than was expected, yet with labour at 8s. or 10s. per day, he could see no very large result in the cultivation of cotton to be relied upon. We had, as he had stated, some cotton from Brazil, a country admirably suited for the growth of that commodity, but there again the obstacle of want of labour interfered with the increased production to any great extent. Therefore we were driven, if we would look for an adequate increase in the supply, to India. Previous to the American war the average supply from India was about 500,000 bales per annum; it had been for the last three years 1,500,000. One would say threefold was a fair and adequate increase, but it did not at all satisfy him. Had the recommendations of the Cotton Supply Association been attended to by the government, he ventured to say the sufferings of the operatives would have been spared, and their forced emigration would not have taken place. If there were any gentleman present representing that government he would be happy to prove his words. There laid at their door great and deep responsibility for the sufferings which the population amongst whom he resided had had to pass through. Sir Charles Wood told them government had nothing to do with the cultivation of cotton; that it was interference infringing upon the laws of *political* economy. He (the Chairman) would answer that. The whole government of India was an infringement of the laws of political economy. It began with the cultivation of tea; it was at present cultivating opium, manufacturing jute, and carrying on iron works, and would any one tell him that all these put together were to be compared with the promotion of a trade which last year took £30,000,000 from this country to India for the payment for the raw material cotton. They never got any assistance from Sir Charles Wood, but, on the contrary, nothing but opposition. But what was done? There was a gentleman whom he had met in this room, who he believed had read a paper before this Society in connexion with the cotton-supply of India — Mr. Shaw. He was a collector in the Mahratta territory. The American planters had been there, and when they left it was officially recorded that the growth of American seed was impossible in the climate of India. Now, Mr. Shaw, of whom he spoke, happened to be a Scotchman, who had had some early training in agricultural pursuits, and it occurred to him that he would himself take up that in which the Americans were alleged to have failed, and he began, unaided by the government, without their sanction or direction, and solely by his influence with the ryots, who looked up to him where they would not look up to a European stranger, he was enabled to introduce with profit the cultivation of American seed in that district, and that seed, when he left the district, produced the best cotton that was grown in India. He was sorry it no longer maintained the position. Mr. Shaw was succeeded by Dr. Forbes, who paid little or no attention to the matter, though he was dignified with the name of cotton commissioner. The Cotton Association becoming acquainted with what he was doing, stated their want of confidence in his services, and disclaimed all connection with him in his capacity of cotton commissioner; and ultimately the propositions made by the Cotton Association were assented to in a limited way. The government appointed a gentleman as cotton commissioner in Bombay, purposely to take under his attention the selection of seeds, whether indigenous or foreign, and for the great object of improving the quality, as well as extending the cultivation of cotton, and that was the only public officer the government had appointed in that capacity; and so far they had reason to be gratified with the results of his labours: and he had no hesitation in saying if, instead of one cotton commissioner, there were a dozen in various parts of India, an adequate return would be made in the extension of the cultivation of cotton. The Marquis of Tweeddale, who took a lively interest in the efforts of the Association, invited their attention to a project of his own when they asked for the appointment of this commissioner. It was that they should obtain the services of a skilled man to attend particularly to the selection of seed. The association considered the proper selection of seed, and its distribution in districts cultivated with an inferior quality of cotton, was important. Earl de Grey and Ripon agreed to this proposition, and a practical Scotch gardener was selected for the duty. The government subsequently added three others; and thus the official expenditure of the government in regard to the maintenance of a product of the value of £30,000,000 per annum consisted of one cotton commissioner and four skilled gardeners! Earl De Grey and Ripon was succeeded by the Marquis of Salisbury; and certainly, during the short time that nobleman was in office, those interested in this matter looked for the most favourable results in the promotion of their objects in India. Unfortunately, he retired, and was succeeded in the office by Sir Stafford Northcote, who had not courage to act in this matter. The fact was, the council behind had great influence, and the right honourable gentleman had not the courage to resist them, and nothing was done. Seeing that we had an able man in the person of the Duke of Argyll, he (the Chairman) had the honour to accompany a deputation to the Duke on this question, and a memorial was presented setting forth the objects which it was thought the government ought to take up, and the means by which it was believed they could be accomplished. In America, the cotton cultivation yielded an average of 300lbs. per acre. [Mr. Bazley, 460 lbs.] Official records did not put it so high as that, and he took it at the lower figure he had given. What was the Indian ryot producing? Only 60 lbs. per acre, or just one-fifth what the American grower was producing. If we could bring up the yield per acre in India to what it was in America we should be now receiving three millions of bales per annum from India; and to attain this end was the object of the propositions submitted to the Indian government. He was sorry to say an official letter, which had been received in reply, gave him but little hope of anything being done. Unless we could obtain other assistance from the India Office than had hitherto been afforded, he saw no chance of anything being effected. We could look for no rapid increase of supply from India, and our operations must be left to the slow increase from America, which he thought was a great mistake, whether we looked to the interests of India on the one hand, or the important interests of England on the other.

Mr. Rogers said that he would be happy to give his experience wth regard to the Presidency of Madras, having had none in any other part of India. He would say he thought there was very little that the government could do with regard to increasing the supply of cotton. His own opinion was that the cultivation of cotton in India had almost reached its full limit, seeing it was necessary in that country to grow grain for fodder for cattle as well as cotton. He did not know any part of Madras where cotton could be grown entirely, but only in rotation with other crops. As far as he could give an opinion of the portion of country with which he was acquainted, the only way of increasing the supply of cotton was by extending the general cultivation of it. Several years ago, when the price of cotton was very high, a great stimulus was given to the production of cotton. It was produced in too great quantity. The ryots found out their mistake in this way; they found they had not grown enough fodder for their cattle. The consequence was a great reaction, and a great deal of the land which had been devoted to cotton was appropriated to the growth of fodder. The ryots were obliged to buy fodder, which cost them so much that they went to the opposite extreme, and grew too little cotton and too much fodder. That would, no doubt, correct itself in time, and he had no doubt had done so to a certain extent. He thought the government, as far as he knew, were not so much to blame as some persons imagined. The suggestion was now made that government should encourage the extension of the cultivation of cotton by providing for the selection of seeds, and that the collectors should use their personal influence in their several localities in the same direction. It must be recollected that, however willing the collectors might be, the only thing they could do was to use their personal interest with the ryots, with whom they came in contact to a great extent; but people in England had no conception of the varied duties which Indian officials had to discharge, and the enormous tracts of country they had to look after. In Bombay they were also magistrates, and they had really no time to devote their attention, to any great extent, to matters of this kind.

Mr. George Campbell said he was glad that the discussion of these subjects had been entered upon, because it was desirable that those who were government officers should be brought face to face with gentlemen interested in the commerce and industry of the country, in order that they might understand what they required, and that they on their part might be able to say what it was probable the government could give, and what they could not give. This he would say at the outset—that the chairman did injustice to the India government, and also to the old East India Company, when he said they had failed in the endeavour to promote the cultivation of cotton in India. It seemed to him, if there was one fact on which we might feel sure, it was this—That the old East India Company were most anxious to promote the cultivation of cotton, and used every means in their power, according to the lights they had, to promote it. The East India Company was, originally, a commercial body, and it arose from their commercial character that they were anxious to promote the cultivation of cotton as a staple article of commerce. They went about it in the most persevering manner, and, amongst other things, imported American cotton planters for the purpose. He said, distinctly and decidedly what was wanted on the part of that Indian government was not the will but the knowledge of the mode by which India could be turned to profitable account in this respect. That knowledge, he submitted, was still wanting, and that knowledge they should have imparted to them by those who had it in a practical form. He was himself but an executive officer of the India government, but he would say, with confidence, if the Manchester men, or any other men, could show them the way to foster and improve the cultivation of cotton, the government were alive to the fact that it would be an enormous benefit, not only to this country but to India, to promote that great object. The chairman had said Sir Charles Wood was particularly wanting in failing to do what he was asked to do, that he argued the doctrine of political economy and other things that had gone a great deal out of fashion; but the chairman also said the whole government of India was in defiance of political economy, and that they cultivated opium and manufactured salt. So they did, but they did it as following out the system of monopoly, which was one of the great features of Indian finance. He presumed the Chairman would not desire to make cotton a monopoly of the government, in the same way as the Dutch government had made coffee a monopoly in food. Then he (Mr. Campbell) presumed that the government could only do in a greater degree, and in a more happy method, that which the old East India Company attempted to do when they imported American planters into India, and appointed a cotton commissioner to foster the cultivation. But he failed to perceive what were the exact practical measures which the Chairman would urge. He said one cotton commissioner had been appointed by the government, and that had been a failure; that another had been appointed, which was, in his opinion, a success. The fact stated by the Chairman exemplified what was common to all human affairs, whatever we did; sometimes failure, sometimes success; one commissioner was good, another was bad. He had no hesitation in saying, if the government had good reason to suppose the ap-appointment of twenty cotton commissioners would promote the cultivation in a great degree, the government would be ready to appoint them. He agreed with the gentleman who preceded him, that he could not expect any special fitness for this work on the part of the existing collectors in India, who were, as was said, already overburdened with work; therefore, they must have men specially selected for the purpose. He would put the thing in this way: Supposing the government consented to appoint twenty cotton commissioners, what were they to do? Already there were cotton commissioners who did what in them lay, but he did not think they had succeeded materially in improving the mode of cultivating cotton. It had been said the cotton supply from India had of late years been improved, but he believed it was the preparation of the cotton that had been improved. Except in the district of Dharwar, he was not aware that any great change had taken place in the cultivation of cotton in India. So far as the central provinces were concerned, where the best cotton was produced, the cultivation was carried on by the natives in their own fashion, without any great improvement having been effected by the cotton commissioners. They were merely officers going about collecting and giving information, and supplying statistics in an accessable form; and he hoped, sooner or later, those labours would be crowned with some considerable success; but he denied that the cotton commissioners had revolutionised the cultivation of cotton, or that it was possible they could do so. They wanted not so much to extend the cultivation of cotton. What they wanted to do was to improve the method of cultivation. They wanted to ascertain the mode by which the present produce of 50lbs. or 60lbs. per acre of bad cotton could be increased to 300 lbs. or 400 lbs. per acre of good cotton. That was a question to be slowly and laboriously worked out by many processes of many minds, not to be done in a day, and not to be done without laborious and skilful method. The practical point was to improve the cultivation, which the natives had hitherto carried on in their own fashion. He need not say that the great object of the government was to promote good administration amongst the people. The government had carried out what was a primarily essential measure towards successful cultivation; they had established a good and permanent tenure of land: and he thought they might say the ryots had secure possession of their lands. They knew the terms on which they held them, and in that respect there was no difficulty. In the end it came to this—that Manchester wanted the government to do in India what in this country was done by enterprising men and bodies, and the question was, how was the government to do it? He had failed to gather from the Chairman's remarks what those whom he represented required to be done, except the appointment of cotton commissioners; but what were they to do when they were appointed? He thought he might say the result of the several discussions that had recently taken place in this room on the various products and resources of India had been to arrive at a conclusion that there ought to be an Indian department of agriculture; that the government should undertake what the government of France and other despotic countries undertook. After all, he believed the grand difficulty which lay at the root and foundation of the thing was the want of technical education, and more especially agricultural education. It was the case to a great extent in our own country; and it was the case that we had not educated the natives of India in these matters. In that matter we must begin at the beginning. What had we done in India with regard to the higher classes of natives? There was in India a class of people designated by the name of zemindars, who were expected to perform the functions of our English landowners. In the province of Bengal, where the experiment was first tried, those men were educated to a very high point. The consequence was, though they were versed in the classics and philosophy of Europe, if they came to be agriculturists they hardly knew a horse from a cow. They were without the smallest rudiments of agricultural knowledge, and those were the men from whom they expected such great things in connection with the agriculture of India. The ignorance of agricultural matters which pervaded the native landowners was felt by ourselves. An ordinary English gentleman had no education touching agricultural matters. It was much the same with planters who went out to undertake commercial enterprises in India. A good many of them did not know a horse from a cow. Take the case of tea cultivation. Gentlemen paid large sums of money for tea estates, and, in some cases, they engaged gentlemen educated as midshipmen to take charge of those tea plantations, because there was not a supply of technically educated Englishmen, or natives, to do these things. The fact was agriculture in India was a difficult and complicated thing, and under entirely different conditions from those which obtained in this country. It was not enough to import our ideas of subsoil ploughs and agricultural implements and say to the natives, "Here is proper machinery for your use—adopt them!" The natives would tell us they knew the methods which were best suited to their soil and climate. This was illustrated by his predecessor, Sir R. Temple, who went to a great expense in importing into the central provinces the best agricultural machinery that England produced. But what was the result? The people were brought together to see these implements, and they admired them as such, but they could not be brought to use them. We could not *per saltum* introduce our machinery into India. It would be as reasonable to talk to them in the English language as to talk to them of the English methods and appliances of agriculture. They must begin upon an entirely different system, and for that they must not trust to the government alone. The thing could only be done slowly and laboriously. They might have cotton commissioners, but they must be practical men—men educated not only in the details but also in the science of agriculture. He believed that model farms might be introduced with great advantage by the government; and he thought there was a good deal in the proposition for a department of agriculture in India. It might be said, with truth, that in the various provinces there were boards of revenue, whose function was to look after the land revenues, and in doing that to look after the landed interest generally. But here again there was the difficulty that they had not the special knowledge that was required. Therefore he agreed that much might be done by the establishment of a central department of agriculture in India. But, in addition to this, there was another aspect of the matter which must not be overlooked. That was the preparation, or he might call it semi-manufacture, of the cotton, and the imperfect manner in which this was done had occasioned a great deal of the mischief in connection with Indian cotton. On this head he might refer to the success which had been achieved by the indigo manufacture. That plant was well known before Europeans went to India. They bought the indigo from the natives, manufactured it, and worked it up for the market. He believed Europeans could do great things by purchasing and preparing cotton in the same way. All he could say, in conclusion, was he had not heard from the chairman the exact particular practical methods by which he would have the government proceed to improve the cultivation and supply of cotton. The government was doing what they could, and he (Mr. Campbell) as an individual officer protested his willingness to do all he could; but those interested in this country must put their shoulders to the wheel also.

Mr. CHADWICK, M.P., having expressed his concurrence with all that the Chairman had said with respect to the conduct of the government, remarked that it had been his lot to take a humble part in connection with the cotton movement in Manchester for many years; therefore, it was with some interest he had listened to the observations of Mr. Rogers and Mr. Campbell in defending as far as possible the action of the government in regard to the cultivation of cotton in India. Mr. Campbell thought all had been done that could be or ought to be done, and that it rested with Providence, or a department which time might bring forth, to cultivate cotton to the extent which he thought ought to be attended to immediately. He would like to say to Mr. Campbell, in reply to his inquiry what it was the Manchester people wanted, that they had told the government of India, Sir Charles Wood's predecessors and successors, and other officials of the Indian government, a thousand times what they wanted. In few words, to repeat it, it was this: There was a great demand for cotton in England; we had been mainly deprived of the American supply; India could produce it in unlimited quantity; we had the opportunity of extending the cultivation in a country under our own government; why not, then, take practical measures to do so? He denied that the government had adopted the practical measures which had a thousand times been pressed upon them. Mr. Campbell said, what could the collectors do, who had so many other duties to perform? He did not blame the collectors; they had more duties than they could attend to. But he said a government which was paternal, and had almost absolute power, could do ten times more in fostering the cultivation of that article than a constitutional government like that of England. He said there were hundreds of thousands of acres capable of producing cotton, but the government had failed to apply the proper stimulus or the growth of that staple. It was true that during the last ten years the export of cotton from India had increased threefold. That showed to what extent it could be increased; and if it had so increased under existing discouragements, to what extent might it have been increased if proper encouragement had been given. With a trade already worth £30,000,000 per annum, what should a paternal government do? They should make more roads, and make arrangements to stimulate trade; it should encourage every facility that could be given to that trade. He had for some years taken a part in this matter with his friends in Manchester, and they were taunted with "Why do you not send your capital out to India?" He had no hesitation in saying a large sum of money had been expended to stimulate the growth of cotton in Dharwar, under the solemn promise of Sir Charles Wood that he would provide roadways to Sedashegur, and the whole of that money had been lost through the defection of the government in not fulfilling their solemn promises. He believed in the next ten years the growth of cotton in India might be increased sixfold or tenfold. There could be no better trade for India than the production of cotton. If they continued their labours in this direction he believed they should obtain from the present government some great advantages in the appointment of cotton commissioners, and in the establishment of agricultural colleges and model farms in India; and from these measures, in conjunction with the introduction of the best qualities of seed, the cotton producers might in a few years be increased tenfold.

Mr. J. B. SMITH, M.P., after reviewing the history of cotton supply during the last thirty years, went on to say that Manchester men were told they were seeking to promote their own personal interests. No doubt; but they were promoting the best interests of India at the same time; and he asked whether the thirty millions sterling which we now paid for the cotton of India was not a most important acquisition to that country, and whether if the production could be doubled the welfare of India would not be doubly promoted? The government might do a great deal towards this. A gentleman had mentioned irrigation. No doubt the production of cotton might be immensely increased by irrigation. He had seen samples of Indian cotton, grown by means of irrigation, which he thought were better in quality than any short-stapled American cotton he had ever seen; and that cotton produced 300 lbs. per acre by means of irrigation. The great disadvantage which India laboured under, as compared with America, was with respect to the means of carriage. In America they could bring cotton a thousand miles down the Mississippi for half-a-farthing per lb. There had been no Governor-General sent out to India for many years without receiving a deputation from the Manchester Chamber of Commerce, pointing out the advantages which would accrue to this country and to India from the extended cultivation of cotton. He had himself the honour of addressing Lord Elgin on this subject previous to his going out, and he then endeavoured to impress upon his lordship the importance of opening out the navigable rivers of India as a means of bringing cotton to the market at a cheap rate. In the province of Berar the finest cotton was grown, and up to the time of Lord Elgin's departure for India no supply of cotton from that province was received in this country. The reason why that cotton had never made its appearance before was this—the distance was about 500 miles from Bombay, and the only means of transporting the cotton was on the backs of bullocks, and that could not be done at a cost of less than 1½d. or 2d. per lb., and the reason why it found its way into the English market at all was this, that cotton which used to sell at 3d. or 4d. per lb., got up to 1s. per lb., and the freight of 1½d. or 2d. per lb. was of very little consequence when the price rose from 4d. to 1s., and, therefore, the cotton was brought overland to Bombay, and thence found its way to Liverpool. What he wanted to impress upon Lord Elgin was, how easily that cotton might have been brought to a port of shipment at a cost of not more than a farthing per lb. by opening out the river Godavery, When they urged the Indian government to give its aid and countenance to the production of cotton, they were told that such a course was opposed to the principles of political economy, that a good demand and a good price would always bring an ample supply, and no doubt that was a general truth. If we wanted a supply of corn or any other article from America, we had only to offer a good price to obtain what we wanted. But the difference between America and India was, that in the former country cotton was grown by skilled capitalists devoted to the growth of one kind of produce, while in India it was grown by poverty-stricken ryots, who, for want of roads to facilitate the interchange of produce between one part of the country and another, were obliged to grow everything they required for their own use, and therefore could not, as in America, devote their attention solely to the production of cotton. Whilst this state of things existed, the growth in India must be limited, and, as we have seen, the stimulus of high prices has not had the same effect as in other countries in increasing the supply. Mr. Campbell says "he had failed to gather from the Chairman's remarks what those he represented required to be done." Mr. Campbell appears not to be very well informed of the efforts which have been made for the last thirty years to induce the government to promote the growth of cotton in India. In 1841, the Directors of the East India Company were induced, at the recommendation of the Manchester Chamber of Commerce to send out American cotton-planters to India. Their mission was a failure, and the government, who had spent considerable sums in the endeavour to increase and improve the growth of cotton, considered all further efforts as hopeless. At this juncture it happened that Mr. Shaw, the collector of Dharwar, being strongly impressed with the value and importance to India and to England of the growth of an improved quality of cotton in India, and having seen the experiments of the American planters, was convinced, notwithstanding their failure, that he could grow good cotton from American seed. With great difficulty Mr. Shaw prevailed upon the government to allow him to try the experiment. He commenced by superintending the cultivation of twenty-five acres with American seed, which he afterwards increased to 25,000 acres. Mr. Shaw had great difficulties to encounter in overcoming the prejudices of the ryots, which could only be accomplished by great firmness and perseverance, but he had no less difficulty in encountering the prejudices of his own countrymen. The American planters having declared that Mr. Shaw's experiments had failed, and that the cotton he grew from American seed was inferior to that grown from native seed, samples were sent to Bombay, and the merchants there agreed in opinion with the American planters. Mr. Shaw still maintained his opinion, and the government then, at his instigation, ordered 500 bales of native cotton to be purchased and saw-ginned, and sent to Bombay with 500 bales of Mr. Shaw's cotton grown from American seed. The two parcels were sold by public auction, and the Bombay merchants, true to their opinion, gave the highest price for the cotton grown from native seed. When Mr. Shaw heard of this result he felt, to use his own words, "fairly done up." The laugh went against him, but he had only to wait a few months, when the laugh was turned the other way. The cotton was shipped from Bombay to Liverpool, where its true value was understood and appreciated. At the sale by auction there Mr. Shaw's cotton was sold for 6¼d. per lb., while the cotton from native seed, for which the Bombay merchants had given the highest price, was sold for only 3½d. per lb. Now, it happened that the late honourable member for Manchester (Mr. A. Turner) purchased some of this cotton grown from American seed at 6¼d. per lb.; he tried it, weight for weight, with ordinary Orleans cotton, which cost 6¾d. per lb., and the result was that the Indian cotton produced three per cent. more yarn than the American, and of equal quality. He (Mr. J. B. Smith) thought that these facts settled the question of India being able to produce a quality of cotton equal to ordinary Orleans; and what was most important to be known was, that the quality of cotton called ordinary Orleans formed the bulk of all the cotton consumed in this country, so that if India could supply a similar description of cotton, which Mr. Shaw had demonstrated she could, she would be able to meet all our demands. Mr. Shaw was compelled to return to England on account of ill-health, but he generously acceded to the wishes of the Cotton Supply Association to return to India with his son, expressing the greatest confidence in being able to extend and improve the cultivation of cotton in different parts of India as he had done in Dharwar. Mr. Campbell asks what we require to be done. We answer that we require that the government should send out Mr. Shaw again. That was a practical suggestion, but Mr. Shaw was an enthusiast, a character distasteful to old Indians, and Sir Charles Wood, instead of complying with so reasonable a request, ordered a book to be written to show that all government efforts to improve Indian cotton had failed, and with astounding hardihood, in the face of Mr. Shaw's success, the author declared that such improvements as have been made were "mere cultivation in a flower pot." The growth of cotton from American seed had, in 1861, increased from 25,000 cultivated by Mr. Shaw, to 300,000 acres, but for want of that European superintendance, which is indispensable in India, the quality has deteriorated through the carelessness of the natives in mixing the native with the American seed. If Mr. Shaw had been sent out to India again, the production of cotton there would have been nearly doubled, the American seed yielding about 100 lbs. of cotton per acre, while native seed only yields about 50 to 60 lbs. per acre. Mr. Campbell had hinted at one or two means of carrying out improvements in the cultivation of cotton. He had mentioned as one, the establishment of a Board of Agriculture. He (Mr. Smith) thought that was a good idea; but there was also wanted a Board of Public Works. He believed he was justified in saying that if the Marquis of Salisbury had remained in power he would have laid out £50,000,000 in the development of India. The expenditure in public works in India must be increased. In proportion as the country became more civilised the wants of the people would increase, and with the expenditure on public works the revenue would increase; and there was no better way of adding to the public revenue of the country than stimulating and encouraging an increased production of cotton. He was sorry to say the Indian government, up to this time, had not shown a desire to meet the views which had so repeatedly been urged upon them on this subject. He hoped the time was coming when they would be disposed to listen even to the interested people of Lancashire, because in so doing they would advance the general prosperity both of this country and of India.

Sir **Charles Wingfield**, M.P., agreed with Mr. Campbell in thinking that those who had cast blame upon the government had made no specific suggestions as to what they wanted. They talked of encouragement and stimulus to the cultivation of cotton, but did not tell them in what way they wanted the government to assist. He thought too much was expected of the government. They seemed to be under the impression that India was like a Carolina plantation, the whole soil of which could be applied to the cultivation of cotton; but they forgot that the Indian government was not the landowner. Throughout the whole of India there was a right of tenure as secure as it was in England, provided the proprietor paid the land tax or tribute that was imposed, and the government had no power to dictate to the ryots what particular kind of crops they should grow on their land. Take the province of Oude. He did his utmost at the time of the American war, to promote the cultivation of cotton. In that province the land was held, in large estates, by individual proprietors, and, to oblige him, they evinced their readiness to promote the cultivation of cotton. He procured seed from the Manchester Cotton Supply Association, and a large portion of that seed was sent into the province of Oude. The proprietors of the land distributed that seed among their tenants; for two succeeding years a very beautiful quality of cotton was produced, but they said it did not pay them so well as sugar. It was a mistake to suppose that the laws of supply and demand did not operate in India. As a proof of that, he would mention the enormous increase in the exports of oil seeds and jute consequent upon the Russian war. He had told gentlemen interested in this question during the American war, that if they wanted superior cotton from India they must send their agents there, who must not only furnish the seed, but show the natives the sample they required, and also give an assurance that they would meet with a market on the spot, with ready-money payments for their produce. He believed if that was done the demands of the home market would be readily met. With regard to roads, he believed the upper provinces of India and the whole of the north-west provinces were admirably supplied with roads, and with the exception of the Ganges and Jumna, which in some of the principal lines of traffic were bridged with boats, there was scarcely a stream which was not bridged wherever a road of any importance led to it. There was scarcely a part where a laden hackery cart could not go. In fact the great complaint in India at the present time was, that the price of produce had risen very greatly. Why was that? Because of the facilities of communication. When there was scarcity of an article in one part, a supply was brought from another part where the article was abundant. The question was, what could the government do to promote the cultivation of cotton. The government could do little or nothing through their present officers; they could not, as he had already said, bring pressure upon the ryots because they held their land independently of the government, but even supposing they wanted scientific instruction in agriculture, the collectors and officers had not leisure to give attention to it. Those officers were already weighed down with the various duties they had to perform. But he thought a suggestion which was made by Mr. Bazley, a few days ago, was worthy of attention, viz., that the government could establish schools of agriculture and model farms, where the best implements and modes of tillage could be shown to the natives, and where the best seeds and plants might be grown and distributed to the natives. In conclusion, he would say he had served the government for many years, and was aware of the dissatisfaction expressed in this country at the seeming backwardness of the government. He thought that was a wrong impression. He knew Sir Charles Wood had given dissatisfaction, but he thought, in many cases, the result proved he was right, especially in refusing his sanction to the sale of waste lands except by public auction, inasmuch as those who bought those lands came begging to the government to be relieved of their liabilities. On the subject of irrigation, he believed it was the intention of government to spend thirty millions in irrigation works. He thought such works as irrigation should be undertaken by the government, because they gave great returns in the improved fertility of the soil. He did not believe they would pay in the case of companies, because the mere sale of the water would never yield a large return.

The discussion was adjourned to Friday evening, June 25th, on the motion of Mr. THOMAS BAZLEY, M.P., seconded by Mr. HYDE CLARKE.

The adjourned Conference was held on Friday evening, June 25th, JOHN CHEETHAM, Esq., in the chair.

The following communication from Lord WILLIAM HAY was read:—

The importance of developing the cultivation of cotton is recognised by all parties. Probably no one is ignorant of the extent to which the natives of India have profited, both morally and materially, in consequence of the large demand for raw cotton created by the American war.

Nothing lowers the moral tone of a people more effectually than wide-spread indebtedness, and it is no exaggeration to say that the wealth poured into India in payment of its cotton, during the American war, raised not thousands but millions of our native subjects from a state of humiliating dependence to one of independence, and, in many instances of affluence. The causes which produced the exceptionally high prices prevailing in India within a comparatively recent period no longer exist.

The cultivation of cotton has shown a tendency to fall off, and it is not unnatural that those interested in the manufacture of cotton goods should be most anxious to prevent the production of that valuable article from dwindling into its former narrow limits. The merchant has thus been brought face to face with the government. The merchant charges the government with having done practically nothing to encourage the growth of cotton, while the government replies, "On the contrary, we have done all that a government can do without infringing the laws of political economy."

On Friday last, the conduct of the government was criticised in severe terms by many gentlemen of weight and knowledge. They were defended by two distinguished members, one of whom, Mr. Campbell, stated that no practical suggestions had been offered for the consideration of the government. The best answer to this allegation was to be found in Mr. Campbell's own speech, in the course of which he made several recommendations which he thought ought to be adopted. They were, first, that a separate department of agriculture should be instituted; second, that practical and scientific agriculture should be taught in our Indian schools; third, that model farms should be introduced; and fourth, that gentlemen appointed to the post of cotton commissioner should be practical men, conversant not only with the details but with the science of agriculture.

Now, here we have a considerable catalogue of measures, which even a warm defender of the government believes might be advantageously, but have not been, carried into effect; and let it be remembered that they are neither new nor original. The principal one, viz., that of a separate department of agriculture (a plan which I myself prefer to the introduction of mercantile members into the council), having been proposed, three years ago, by Mr. Ayrton, in an elaborate speech in the House of Commons on the night of the Indian Budget.

The truth is, that every measure which has been adopted within recent years for the extension of cotton cultivation has been the result of strong external pressure, brought to bear upon an unwilling government. Even such trifling measures as the appointment of a cotton commissioner, and of three or four experienced gardeners, would never have occurred if such pressure had not been used. The practical lesson to be drawn is, that nothing will be done by the Indian government except in deference to a strongly expressed public opinion, and that therefore the motto of the merchant should be—"Agitate —agitate—agitate."

It is quite true that there are some things which the government can, and some which it cannot be called upon to undertake. It cannot, for instance, be asked to increase the breadth of land devoted to cotton. The natives must be left to themselves to decide what they shall grow in their fields. To employ any sort of compulsion would be to follow the short-sighted policy which is now embarrassing the Dutch in Java.

The government must confine its efforts first to such indirect means as improving communications both by land and water; and secondly, to showing, by experimental farms and other similar methods, how "two pounds of cotton may be made to grow where only one grew before."

Again, the law that a demand will always produce an adequate supply must not be taken literally in a country under such peculiar conditions as India. Take, for instance, the cultivation of cinchona. In no country in the world is the want of quinine more constantly felt, but that want has produced no corresponding supply, and we should have no prospect of seeing the deficiency supplied if government had not undertaken the trouble of introducing the cinchona plant into India. The same may be said of tea. Indeed, it would be interesting to have a comparative estimate of the sum of money spent by the government on the promotion of tea and cotton cultivation. We suspect that tea would be found to have been favoured out of proportion to its value as an article of commerce, and it is curious to note that, in the Indian accounts laid the other day upon the table of the House of Commons, not a farthing appears to have been spent upon promoting cotton.

Mr. Cheetham declared that our government in India was constantly infringing the laws of political economy; but he would have been still more correct if he had said that India was precisely in that condition recognised by political economists as one justifying a departure from the ordinary laws of that science. This is a point which Indian statesmen are too apt to forget. A memorable example was furnished by the Orissa famine—on which occasion, rather than break the laws of political economy, hundreds of thousands of our native subjects were allowed to die of starvation.

But besides, the government of India does not act up to its own economical doctrines. At this moment it is spending annually immense sums of money upon a bad telegraph through Persia, and thereby doing all in its power to promote one private enterprise to the detriment of another. It is this inconsistency which has more to do, probably, than anything else with the unpopularity of the Indian government. The following passage from the writings of Mr. Mill should be written in letters of gold over the entrance to the India Office:—"It is, however, necessary to add, that the intervention of government cannot always practically stop short at the limit which defines the cases intrinsically suitable for it. In the particular circumstances of a given age or nation, there is scarcely anything really important to the general interest which it may not be desirable, or even necessary, that the government should take upon itself, not because private individuals cannot effectually perform it, but because they will not. At some times and places there will be no roads, docks, harbours, canals, works of irrigation, hospitals, schools, colleges, printing-presses, unless the government establish them, the public being either too poor to command the necessary resources, or too little advanced in intelligence to appreciate the ends, or not sufficiently practised in conjoint action to be capable of the means. This is true, more or less, of all countries inured to despotism, and particularly of those in which there is a very wide distance in civilisation between the people and the government, as in those which have been conquered and are retained in subjection by a more energetic and more cultivated people. In many parts of the world the people can do nothing for themselves which requires large means and combined action; all such things are left undone, unless done by the State. In these cases, the mode in which the government can most surely demonstrate the sincerity with which it intends the greatest good of its subjects is, by doing the things which are made incumbent on it by the helplessness of the public in such a manner as shall tend, not to increase and perpetuate, but to correct that helplessness. A good government will give all its aid in such a shape as to encourage and nurture any rudiments it may find of a spirit of individual exertion. It will be assiduous in removing obstacles and discouragements to voluntary enterprise, and in giving whatever facilities and whatever direction and guidance may be necessary; its pecuniary means will be applied, when practicable, in aid of private efforts rather than in suppression of them, and it will call into play its machinery of rewards and honours to elicit such efforts. Government aid, when merely given in default of private enterprise, should be so given as to be, as far as possible, a course of education for the people, in the art of accomplishing great objects by individual energy and voluntary co-operation."

Mr. Bazley, M.P., after expressing his thanks to the Chairman for presiding over these conferences, and to the Society of Arts for affording these opportunities of discussing this important subject, said, about eighteen years ago he had the honour of reading a paper in this room, when the late Prince Consort honoured him by occupying the chair; and he then stated at considerable length the views which, he was sorry to say, remained to the present time as patent as they were then. The cotton trade at that time was largely supplied from the United States of America, and very slightly indeed supplied from other parts of the world, and he felt convinced that the forebodings of future supply were disastrous; and on that occasion he asked this pertinent question, "Might not disease or revolt materially destroy the culture of cotton by the Southern planters of America?" That prediction had been lamentably fulfilled, and at the present time, in the cotton trade, perhaps there was a degree of suffering and distress never previously existing. Capital was diminishing in amount, the labouring classes were deprived of their ordinary comforts, multitudes were unemployed, and many had diminished means of subsistence. Now the question was, where should we turn to obtain the relief that was so much needed? We had seen that America had failed us. At the time he had referred to, America was supplying us with 85 per cent. of the cotton we consumed, and at that time the British dominions only supplied us with 7 per cent., whilst other sources sent us the small balance of difference. Well, now we were in the position of having to some extent altered the condition of things, for the American supply had been unavoidably diminished, and he was glad to do India the justice of saying the supply from that great dependency was increased. Before going further into the questions touching the general interests of the cotton question, he would refer to the great fact that the Chamber of Commerce of Manchester had, for a considerable period of time before the period he referred to of 1851, made efforts to induce the East India Company to form roads, to introduce railways, to construct canals, and to promote irrigation, he was sorry to say, without much effect. At the same time he would do full justice to the East India Company for having had the spirit to send to the States of America for a number of cotton-planters, to initiate the cultivation of cotton in India. He need not tell them that was a failure. The Chamber of Commerce felt the difficulties were so great of governing India by a commercial company, that at last they determined to apply for the substitution of an Imperial government. That Imperial government was established under the government of which Lord Stanley was a member, and he issued a most enlightened proclamation. In 1858, the East India Company ceased to exist as a governing power in India, and the Imperial government was called into existence. It would have been well if that new policy had had the practical application which Lord Stanley put forth. He would not deny the progress that had taken place since the Imperial government had been established; on the contrary he admitted perhaps no country in the world had made progress so rapid as British India since the establishment of the Imperial government. But that government stood almost alone. We knew quite well that in India there was scarcely a public opinion existing. We knew quite well that there were no capitalists in India, as in this country, willing to launch into different enterprises, none who would have projected railways, none who would have projected public works, none who would have entered into the cultivation of the soil with any spirit, and very few indeed who were prominent as leading merchants. At the same time there were bankers who had great wealth, and who had evinced by their pecuniary transactions all the avidity for pecuniary accumulation that other men had; and he would do the Parsees the justice to say, that there were few cleverer men than the Parsee merchants of Bombay; but there was no public opinion and no enterprise on the part of wealthy middle-class men; and, with the paternal government which Mr. Campbell referred to the other evening, it was clear unusual and important duties devolved upon the Imperial government. They stood in the position of controllers of that great territory which had been accumulated by a commercial company—a company that did very little for commerce, but paid a great deal of attention to the addition of territory to territory; but the present Imperial government, he hoped, having consolidated the empire, would not aggrandise by additions which would not add to the power of their position, but would rather pursue a course of conciliation and improvement which would benefit the great body of people, and raise them in the scale of civilisation amongst the nations of the earth, while the intercourse between Great Britain and India should give rise to a prosperity to which alike India and this country were both strangers. He would now proceed to the analysis of this great question which they had met to discuss. We must have public works established; we should, he ventured to say, have not less than twenty millions expended as quickly as possible in great public works, in additional railways, and roads of communication that would be feeders to the railways. We ought to have canals, and above all a great increase in the means of irrigation. The quality of Indian cotton was very inferior; but he condemned the powers that ruled in India by an authority peculiarly their own. He had the pleasure of knowing the late Dr. Royle, the botanist of the East India Company, and a more enlightened and intelligent man he had rarely met with; he was sorry that death had deprived them of his services. Dr. Royle had put on record this clear and explicit statement. He said:—"Facts respecting quality and price afford sufficient proofs that India is capable, in many parts, of producing good and serviceable cotton, and at a rate cheap enough to contend even against the large returns of America." Now, we had beautiful specimens of cotton, from time to time, from model farms, and from gentlemen who had speculatively directed attention to the growth of a little cotton, and he had seen specimens of cotton from India as good as we could desire to possess. He had been so anxiously desirous of doing everything in his power to direct public attention to the necessity of having large supplies of cotton from new sources, that thirty years ago he was himself induced to make experiments in the cultivation of cotton in the city of Manchester. He was then successful in producing cotton that had never been excelled in quality in any part of the globe. He had brought specimens of that cotton with him, and that article which he produced in Manchester took the highest position, while the Indian cotton at that time took the lowest position. When the American planters were on their way to India, and came through Manchester, he took them to see his plants, of which he had a considerable number, and they did him the honour to say that they never saw stronger or better plants in the States of America. The plants grew to a height of six feet, and produced cotton abundantly. If, then, he could produce cotton of that quality in the gloomy climate which Manchester was reputed to possess, surely in a country where the plant was indigenous, and where it had been cultivated for 2,000 years, it was possible to improve its quality and increase its growth to an almost indefinite extent. He felt confident that might be accomplished, if more attention and decided application were given to the matter on the part of those who had the direction of affairs in British India. The Cotton Supply Association of Manchester had assiduously prosecuted the attempt to get increased supplies of cotton from India; but he could not say that their labours had been crowned with that success he thought they were entitled to, though he thought they had done much good, but such services as they had rendered had been surrounded by difficulties. They sent out to India the New Orleans cotton-seed; and he was glad to see a friend of his, Mr. Cassels (of the firm of Peels, Cassels, and Co., in the room), because it was through that house they were enabled to send a supply of American seed to the cotton-growers of India. He did not attach blame exclusively to the Imperial government or the East India Company, for unless an effort was made by the commercial community, as well as by the governing power for the time being, we should effect no improvement in the cotton cultivation of India. He took a more favourable view of the prospects than his hon. friends the Chairman and the Member for Stockport had done; however, he believed that reasonable suggestions to her Majesty's present Governor-General, through the Secretary of State for India, would lead to reasonable efforts being made, to which he thought the great industry of the cotton trade was really entitled. He believed by agricultural reforms a great result might be achieved. He was glad to hear the very excellent remarks of Lord William Hay on the subject of sending out cotton inspectors, gardeners, &c.; and, to the credit of the Marquis of Tweeddale, he sent out a gardener to improve the cultivation. The results he had not yet heard; but he felt convinced if an additional number of cotton inspectors were appointed, with a suitable number of assistants, for the purpose of grounding the people fairly in the principles of improved agriculture, the results would be exceedingly beneficial. Now, in this great and enlightened country we had a Royal Agricultural Society, and he did not hesitate to say the result of the action of that society had been to increase the yield of the soil of Great Britain, perhaps to an extent of more than 25 per cent. He found that, not only had the yield of wheat and other grain been greatly increased, but the improvement of the breeds of cattle had been very much promoted; and if, in a great wealthy country like this, it was found necessary to have a great organisation for the purpose of teaching farmers who had not been acquainted with those very principles on which their prosperity was founded, how much more necessary was it in India, with a population unaccustomed to European civilisation and to the cultivation of the soil on enlightened principles, to make every effort for the attainment of the objects we had in view. He had himself represented to the Marquis of Salisbury how desirable the appointment of a Minister of Agriculture for India would be. He believed Lord W. Hay made the same suggestion. It was known that in France the Minister of Agriculture exercised very important functions, and was a very useful member of the government. He did not know that there could be better service performed by any Minister of State than that of increasing the yield of the soil. After peace was settled, and good and honest laws had been established, he thought the development of the industrial resources of the country should be first and foremost. Therefore, he trusted reasonable representations made to her Majesty's government would induce them to remove obstacles and give every possible facility for increasing the production of cotton in British India. In the year 1860, the consumption of Indian cotton in this country amounted to about 3,000 bags per week; but at that time we exported to Europe a considerably larger quantity of that cotton than we used. We then exported to Europe about 8,000 bags of Indian cotton per week. The quality being so inferior, and the American being so excellent, the British spinner would not even look upon Indian cotton. In the last year, he was glad to acknowledge, the quantity of Indian cotton we consumed amounted to 15,000 bags per week, or about thirty per cent. of the consumption during the year. The American consumption last year amounted to about 40 per cent. of the whole consumption, or about 20,000 bags per week, having been, in 1860, 85 per cent. of the consumption. But even last year we exported to Europe a large quantity of East Indian cotton. We exported it to the large extent of 12,000 bags per week, which we still refused to use on account of its inferiority; and yet, of course, the English spinner was not unwilling that the Indian cotton should possess the advantage of the highest price he could obtain, and no doubt higher prices were obtained on the Continent than in England, and therefore it was shipped to Europe. In his opinion, the great effort should be to promote the execution of public works; after that the science of agriculture should be engrafted on the people. Now, in his own experiments in the growing of cotton, he founded his labours upon such knowledge as he was enabled to obtain through friends and from published works on the subject of cotton cultivation, and he formed the soil of a mixture of good alluvial soil with sand and saline manure; but above all, he took care to give depth to that soil, in which to sow the seeds of his future plants. Nothing could have been more successful. The cotton-plant threw out a deep, long root, called the tap-root, and it must have a soil that it could penetrate to obtain nutriment and moisture. They knew that the ploughing operation in India did not exercise any great disturbing effects upon the soil. The plough did not penetrate probably more than three inches. He submitted there should be penetration, by ploughing or digging, to the extent of from twelve to fifteen inches, and the plants should have dressings of guano and salt, or of other saline manure. Guano found its way to every part of the globe save India. He knew, from his own experience, it was a successful means of stimulating the plant to yield abundance of excellent cotton. He could state the gratifying fact that, in the States of America, they had recently begun to use guano and salt as a dressing for the cotton-plant. Cotton was an exhausting plant to the soil, and either new soil was required, or dressing the soil with saline manure. They knew quite well that in Georgia, in the States of America, the yield of cotton hitherto had not been more than half the quantity that was produced in the great valley of the Mississippi; while the yield there was, on an average, more than 500 lbs. an acre, Georgia did not produce more than 250 lbs. or 300 lbs. per acre; but a personal friend of his own, who was interested in the cultivation of estates in Georgia, had informed him that, by the dressing of guano and salt, the yield of cotton in Georgia had been doubled, and was now quite 500 lbs. per acre, the same as in the valley of the Mississippi. His hon. friend the Chairman thought the yield of American cotton was not so much as he asserted, but he could state, for his information as well as that of his audience, that Mr. Edmund Ashworth, at a recent meeting in Lancashire, expressed his belief that the yield was little short of 700 lbs. per acre by the application of guano and salt to the plants. He was aware that, on an average of past years, the yield of cotton in India had not exceeded 50 lbs. or 60 lbs. per acre. There were exceptional instances where as much as 300 lbs. per acre had been produced. Previously to the American convulsion, the yield, in a pecuniary point of view, did not exceed, perhaps did not approximate to, an average of 10s. per acre. The simple solution of the question would be this—If, instead of cultivating five acres of ground with cotton, the ryot cultivated one acre, and cultivated that one acre well, he believed the yield would approximate 400 lbs. per acre; but then he was assuming that the earth should be disturbed in such a manner that the roots of the plant could penetrate into it and obtain nutriment and moisture; that the plants should be supplied with the nutriment of saline manure; and that all the advantages of modern cultivation should be given to that one acre. instead of the attempt to cultivate a great number of acres imperfectly. If they came to a product of 400 lbs. per acre, and estimated the value of that at the normal rate of 6d. per lb., the yield would be exactly £10 per acre. Surely, with such inducement as this, there ought to be an effort made to secure the advantages offered; but at the present moment such cotton was worth 1s. per lb., therefore the yield at that rate would be £20 sterling per acre. Without the effort to improve the cultivation, he was sure there would be no beneficial result. As had been stated in this room, the cultivation of indigo had been vastly improved; no indigo was grown superior to that from British India. They knew also that sugar had been immensely improved; and he was glad to acknowledge that excellent tea was to be had, the growth of India, though all the tea-planters there had not been particularly successful. He believed that was in a great degree owing to persons being sent out to superintend the plantations who had little or no knowledge of agriculture, or of the special cultivation of tea. Let them not send persons to cultivate cotton who did not understand the first principles of agriculture. He was glad to acknowledge that Mr. Carnack had rendered eminent service in the superintendence of cotton plantations, and he believed, during the last seven years, the quality of cotton had improved. Mr. Campbell stated he attributed the improved value of cotton to the better process of cleaning, but he was glad to differ from that gentleman, and say that he thought the fibre was better and longer; and he had seen cotton from India, grown under ordinary circumstances, equal to middling American. He felt if the difficulty of growing cotton in India were fairly grappled with, the object of increased supply and higher quality would be obtained, but it would require the co-operation of government to take that position which, in the absence of public effort in India, must take the place of spontaneous effort in other countries. When we saw the state of the labouring classes in this country, we were bound to do what was in our power to ameliorate their condition; and a more melancholy spectacle he did not know than that of men able and willing to work, and not finding employment; and yet such was the case in our own country in the present day. But humanity had little to do with governing principles; at the same time, self-interest had a great deal to do with every government effort, and he was only surprised that the government of India had not, acting upon the great principle of self-interest, developed the agricultural resources of that great country. He would conclude his remarks by exhorting public opinion in this country to direct its attention to a source of wealth that only needed development to be secured to us, and he hoped her Majesty's Indian government would second the efforts of capitalists and the labouring classes engaged in the cotton trade, and that there would be less acrimony and more meritorious co-operation than had hitherto been witnessed. This week a number of labouring men came up to London, to seek an interview with the Duke of Argyll; his Grace received them kindly, and promised to give such facilities as the government could do without interfering unduly with private effort. For himself, he asked for nothing that could not be accepted within the rules of political economy. It had been said that a man was a benefactor of his race who raised two blades of grass where only one grew before; now, if they only got two bales of cotton grown where one only had grown, the promoter of that desirable result would indeed be a great benefactor. If we increased the quantity of the yield of cotton in India, it arose from two causes. If we could double the length of fibre, and doubling the length would only make it equal to ordinary American, generally speaking, we should double the yield by that process alone; but when we could increase the number of fibres as well as double the length, we almost indefinitely increased the yield, and, at the same time, added to the value of the article very considerably indeed. He hoped the measures which had been so strongly urged upon the government would meet with a proper response, and contribute to the revival of the prosperity of the cotton trade in this country, and to the enduring benefit of India.

Mr. Hyde Clarke (late Cotton Commissioner in Turkey) said he had derived very great information from the remarks which had just been addressed to them, and he had felt the more encouragement in this the last of their Indian Conferences this session, because they were now in a position, in some degree, to measure the work in which they were engaged. There had now come to hand Indian newspapers containing the proceedings of the first conference on tea cultivation. The *Calcutta Englishman* and other papers had given those proceedings at considerable length, and there could be no doubt they were producing a large amount of good in India; and he had much gratification in learning, from the secretary of one of the tea companies, that he had eliminated the practical points of those conferences, and sent them to the managers of the company with whom he was connected. He could not but feel assured that the proceedings in which they were now engaged would lead to no less useful results; in fact, he was in some degree confirmed in this by those whom he hardly dared call the opponents of the increase of cotton cultivation in India, but those officials of the government who had spoken in defence of the proceedings of the government.

Their friend, Mr. George Campbell, had shown plenty of reasons for doing what was right, though he apprehended neither that gentleman nor any other member of the government had shown any reasons against doing what he (Mr. Clarke) thought was pretty well proved to be right in reference to this matter of cotton management. In fact, if the government was not in a position to carry out any measures for the extension of cotton cultivation, he should consider it a great reflection on the government of India and the able men concerned in carrying out its administration. It was an unfortunate difficulty they had in dealing with a question of this kind, that those who were the best authorities on India—those who had lived there and had the best knowledge of it—were in the habit of giving very contradictory statements, and this partly arose because they spoke of different parts of the country. Thus, there was one remark made by Sir Charles Wingfield, in corrobation of others who had spoken, in which he affirmed that the roads of India gave full satisfaction, and that the government of India had done its duty in that respect, and consequently, so far, the complaints of those interested in cotton cultivation had not adequate foundation. They knew the high position which Sir Charles Wingfield occupied; they knew, likewise, that neither he, nor any one of those who had spoken, was capable of making a deliberate misrepresentation of the facts, but he apprehended there must be a wide divergence of opinion as to India in general between those who maintained that the roads were adequate and those who complained that they were far from being satisfactory for such purposes. It was agreed on all hands that, before the improvements of the government, there was scarcely a road in India generally; and if we looked to the book published every year showing the progress of India, and looked to the department of Roads and Public Works, we should find there very little to prove that India could be adequately supplied. Considering that India was deficient in roads 30 years ago, even if the 30 years since had been altogether periods of absolute improvement, instead of the expenditure having been checked by various causes, it was not easy to see how that want of roads had been supplied from the funds available. These funds have been the ferry funds, which have not been so very big in operations, which were very small in their original amount, and which, except in some collectorates, are still very limited. The municipal funds are only of recent institution. The imperial funds have been limited, sometimes stopped in times of financial difficulty and revolt, and have been chiefly applied to the main trunk roads. The Act No. xxii., "For Works of Public Utility by Private Persons and Companies," was only passed in 1863, and can hardly have had much effect as yet. It was not the cotton people solely who complained of the want of roads, but every one who came in contact with the government on that subject. In the case of the Bombay and Baroda railway, the company reports as a cause having operated prejudicially on the traffic, "the want of roads in the stations." The Chairman (Lieut.-Col. French) said (*Herapath's Railway Journal*, p. 614), "the reason the present section of the line would not pay better was that there were no roads to the stations." In reference to the Oude and Rohilcund Railway, the engineer (*Herapath's Railway Journal*, p. 612) reports—"The course taken by the lines in Rohilcund is over a country very favourable for the construction of railways; the traffic met daily, passing over roads anything but good, is particularly heavy, and highly promising for the commercial success of the line." Then a point had been made that certain products were confined to particular soils and districts, and that there they had received adequate encouragement. Indigo was pointed to, but if we looked at those products which received great development, such as indigo, jute, oil-seeds, &c., we should find these were produced in districts well provided with cheap means of water transport; but cotton was an article which could be grown all over India, and it was a product which particularly required a cheap means of transport, and it wanted water transport, or something equivalent to it. In a great part of India there was no adequate water transport for cotton, and if it had to be carried in bullock-hackories, as Sir Charles Wingfield spoke of, the cost of such transport was very heavy—8d., 10d., and 1s. per ton per mile. He had to make an investigation of these figures some years ago, and could not help being struck with the fact that, however small the charge appeared when calculated at per maund on bullock-carts, yet it came to 8d. or 1s. per ton per mile. It was a matter of the greatest importance to bring down those rates of transport if we were to encourage a cultivation like cotton. He would like to have said a few words about the American planters who had been alluded to, but he would simply call attention to the fact that the Ottoman government likewise invited American planters, he believed it was about the same time that the Indian government invited American planters to go to India. They failed in Turkey, throwing a very heavy loss upon the government, and likewise upon a great many private proprietors of estates. But did the Ottoman government flinch on that account? No; the government set to work again, and succeeded where the American planters failed. We must not be disheartened by results arising from casual circumstances, which had no real relation to the great operation itself. With regard to transport, it was a matter of the greatest importance to cotton that the cost of transport should be reduced, inasmuch as the growing price of that as well as other articles was the price at the port of shipment; therefore, the price to the cultivator was the price at the port of shipment, less the cost of transport there. If they took the price of cotton given by Mr. Bazley at 6d. per lb., if the price of transport swallowed up half that, the cultivator would only receive 3d. per lb. If we could reduce the price of transport a halfpenny or a penny, that money went into the pocket of the cultivator, enabling him to extend and improve his cultivation. In conclusion he would say two or three words with regard to the question of a Minister of Agriculture, which so many speakers had supported. Only the other day, at the Statistical Society, Mr. Walowski, a member of the French Institute, referred triumphantly to the fact that, through the exertions of the government—because we all know it was the government and not the public—the production of wheat in France had been increased from a measure of 50 to 130. Comparisons had been talked of between the governments of France and India. The people of France were not the people of India, but the people of France were much freer than the people of India; and if under such circumstances they could derive so much advantage from the intervention of a Minister of Agriculture, we might infer that something like an equivalent advantage might be obtained in India itself. He would say with regard to the measure of limit of political economy—he would go further than Mr. Mill, and say the science of political economy was one thing and the science of politics was another; and though in a country like this we might come nearer to pure science, yet in a country like India we must look to the practical application of the science of politics itself.

Mr. LOGIN, C.E., began by drawing attention to the mode of cultivating cotton in the North-Western Provinces, and stated that it was sown "broadcast;" therefore it was necessary to flood the whole field. He said that very little water was used for irrigation, and that cotton had seldom more than two waterings, the first to moisten the soil, to enable it to be ploughed during the hot and dry season, early in June. He then went on to state that, where irrigation was carried on from wells, each watering equalled in depth of about 2½ inches, and that for a crop of wheat four such waterings were sufficient, or, in all, 10 inches, but, where canal-water was used, two or three times as much water was expended; so that, in his opinion, the natives injured the cultivation very often by using too much water. In comparing the cost of water raised from wells an average height of 30 feet, he stated that the cost of one continuous discharge of one cubic foot a second, in the Punjab, he had found cost the cultivators £383 12s., while the cost of the same volume from a canal was only £50 a year. Mr. Login said he could not speak from personal experience of the yield of cotton from a given area, but gave an example where the yield from sugar-cane, under proper cultivation, yielded six times the value of produce to what the natives were able to get from an equal area. This experiment was made 30 years ago, at the Jaharmpoor Botanical Gardens by the late Dr. Falkner; and Mr. Login believed that equally good results would be obtained from the careful cultivation of cotton. He then went on to say that even now, with canal water, by his calculations, irrigated land could support 1,319 inhabitants per square mile, while Lieutenant Scott Moncreif, in his work on irrigation, states that in Valentia, in Spain, no less than 1,774 are fed by the produce of one square mile of irrigated land. Mr. Login, therefore, drew the conclusion that, as the Doah had on an average 460 inhabitants per square mile, if all could be matured the land could feed three times its present inhabitants, and therefore one-half of the thickly inhabited part of India might be set apart for the cultivation of sugar, indigo, cotton, &c., for the European market. Mr. Login next stated that the catchment basin of the Ganges was estimated by Colonel Kennedy at 760,000 square miles, and if only one-eighth of this area was set apart for produce for the European market, this would represent an area of nearly 100,000 square miles, and, as the climate was as good as any in the world, there need be no longer any want of cotton in our markets. In discussing the question of transport, Mr. Login advocated navigable canals in Northern India, to be carried as far down country as Allahabad, where the Ganges became navigable all the year round, and he believed this could be done with advantage to the present and all future railways, by relieving them of the transport of bulky and cheap goods. After stating that the North-Western Provinces had several good roads, some of them better than any in England, though in Northern Bengal there were hardly any, in proof of which he spoke of a road known by the name of the Panch Coss ka Sirick (the ten mile road) from a traveller being able to go over it a distance of ten miles during the rains, Mr. Login concluded by drawing attention to what was said by Sir Charles Wingfield at the previous meeting, about the natives complaining of the English rule having made food dearer, and said this was a remark he also often and often heard, and he himself had known wheat selling at 10s. the quarter in some districts, but probably in other parts of the country the inhabitants were starving. Canal officers had, perhaps, better opportunities than any of hearing what the people say, and on one occasion an intelligent zemindar, when speaking to Mr. Login of the beneficial effects of the Ganges Canal in 1860, the famine year, said the villagers from being "kastcars" are now "sowcars," that is, from being ploughmen are now men of property. In support of what fell from Sir Charles Wingfield, he had drawn on the board a diagram showing the rise of the price of wheat along the line of the East India Railway during 1866, the year of the famine in Orissa, and great scarcity in Bengal. Meerut is highly irrigated, and so is Alighur, yet for all that the prices were much higher at Alighur, because it was on the line of the railway and nearer to Bengal, the place of demand. By the calculations he gave in a letter of his, which appeared in the *Calcutta Engineers' Journal* of October, 1867, he proved not only that the price of grain rose the further it was away from the highly irrigated districts, but that the profits at Cawnpore, Allahabad, and Benares, were one and the same, namely, 26 per cent. on the outlay of the corn-dealers. This diagram, therefore, at once showed how improved communications raise the prices of food in some localities. In that year the prices were 28s. a quarter at Delhi, 29s. 7d. at Alighur, 41s. 9d. at Cawnpore, 44s. 8d. at Allahabad, and 47s. 1d. at Benares. During the present winter, at Delhi the average price of wheat was 40s. a quarter, or double the average, though the produce of the neighbouring district, Alighur, was only 12½ per cent. below that of a good season. So some idea may be formed of the scarcity in other districts, and of what benefit the railway and the roads in Upper India must have been to the country in a year like that just gone by. Regarding model farms, Mr. Login stated that he had advocated their introduction for more than a dozen years back, and he was now glad to see abler and stronger advocates were now coming forward in support of them.

Mr. **Cassels** (of Bombay) remarked that a good deal had been said about roads, principally, he believed, with regard to the North-Western Provinces and Bengal. He would say a word or two about the Presidency of Bombay, which was the most important with regard to this question. If roads were wanting, it certainly was in the southern Mahratta country. A railroad there, with roads branching out, would bring cotton to market in large quantities before the monsoon in better condition than it would after the monsoon; and the roads would open up the trade of the great province of Mysore, which was now shut up. In Guzerat, roads were wanted to feed the Great Trunk Railway. It was fair to add, there was difficulty in making roads, as there was nothing but black soil, and the metal would have to be procured to make them. This was a question which had always been one of great interest to him, and he was one of those who took a gloomy view with regard to future supplies from America. He never expected the same quantity again as before the American war. He believed labour in the Southern States, under the burning sun, would never be congenial to the white man, and he believed the negroes, when left to themselves, instead of multiplying and increasing, would decrease, and ultimately die off the face of the earth; consequently, it was more and more necessary that the attention of the government and the public at large should be given to India, for from that country alone could we obtain cotton to feed the mills of Lancashire. The quality of East India cotton, during the last fifteen years, had greatly improved; he thought he might say it was 30 per cent. better than it was twenty years ago. What they wanted was, in the first place, good roads. They could not put compulsion on the natives to grow improved cotton. The land they held was heritable and transferable. It could be bequeathed or sold so long as the tax was paid to the government, and there were many reasons of state policy why we should not compel the natives to grow certain produce. But what the government could do was to carry out works of irrigation by means of large loans. They ought not to be afraid of doing it. He believed the government might lay out fifty millions of money with the greatest advantage. He thought a great mistake was made in paying so much money out of the revenue to public works, by which a large deficit was shown which really did not exist. The cost of keeping up works should be paid out of revenue, but not the cost of constructing them. Almost all public works might be considered as reproductive works, even barracks, if carried out with a proper regard to sanitary science, would save many valuable lives. If the government would not be timid, but would raise large loans to open out the country right and left, it would greatly increase the quality of cotton from India.

Mr. **Allan** said the few remarks he would offer had reference to Western India. He had the honour of being sent, three years ago, at the instance of Mr. John Fleming, to obtain a local knowledge of the country, and the results of his six months' tour from Scinde to the Deccan enabled him to form an opinion as to what might be one of the most effectual means of promoting the object now under discussion, viz., the improved and extended cultivation of cotton. There could be no doubt the first object was the establishment of good roads, and throughout Western India there was a lamentable want of good roads. They had now a main line of railway from Bombay to Nagpore, 500 miles through the cotton-growing districts. There was also a line through the Deccan, to the extent of 300 miles. Those two lines were now bringing the cotton as fast as it was delivered to them. The want of cross-roads had been severely felt, as also the maintenance of the existing district roads in a better state of repair. The line through Central India would open out that part of the country immensely. Many of the local roads leading to the main-line to Delhi, and also to Calcutta, were being put in order, especially, he believed that from Kundewar to Indore, which, at the time he was there, was a most miserable road. From what was told him at Nagpore it was contemplated to proceed vigorously with that road. He thought one of the most practical means of promoting the objects in view was the establishment of a Department of Agriculture in India. If a Minister of Agriculture were appointed, with a cotton commissioner in each district, that would be a means by which practical results would be quickest and best obtained; and there could be no doubt the appointment of a cotton commissioner in Western India had been one of the main causes which had led to the development and improvement of cotton cultivation which had already taken place. He could speak of this personally, from what he had seen in Kandeish and Central India. He could also bear his testimony to the efforts of Mr. Carnac in stimulating the production of cotton, and bringing it in the best condition to the market. He had established an excellent market in the district, and everything had been conducted by him on the most systematic principles. In this course he had been zealously aided by the ryots themselves, who saw that in all that was done there was the single desire to benefit them; and this had been, he believed, more or less the conduct of all the cotton commissioners. What was wanted was that government should appoint a Minister of Agriculture, and cotton commissioners throughout the country. If that were done, no doubt an immense and rapid improvement would be observed.

Dr. Archibald Campbell remarked that he had never been stationed in any great cotton-producing district, but he had a recollection of the manner in which the roads leading to the Ganges were blocked up with cotton carts, and the difficulty with which the packages were piled upon the rafts like haystacks. That was to a great extent remedied by the railway, which was a trunk line along the great river, with but few feeders from the interior. He knew many large districts where cotton might be grown to a large extent, but that there was no real internal communication. People at Allahabad imagined they were in the interior, but it was merely a large trunk road. What was wanted were village roads between one producing part and another. As far as Bengal was concerned, there might be said to be no roads at all. With regard to Mr. Bazley's experiments in Manchester, he (Dr. Campbell) made some experiments in the Darjeeling Terai, at the foot of the Himalayas, with Sea Island cotton. He got the seed from England, and sowed it on the low lands of the Terai. Having no practical knowledge of the cultivation, he gained such information as he was able from the natives, and he followed their plan, except that he took care to keep the plants clean, and not mix them with other crops, as the natives did. The result was, the production of cotton which, when sent to England, was pronounced of long fibre and excellent staple, and would be a valuable article in the market. That experiment, if it had been followed up as it ought to have been, might have led to large results; but it was sufficient to prove the fact that Sea Island cotton could be grown on waste land at the foot of the Himalayas, of superior quality to the cotton of the country; and if manure was applied, he believed the produce would rise in the ratio Mr. Bazley said. If an acre of land in an impoverished state would grow 50lbs. of cotton, it was quite certain it would grow five or six 50lbs. if it was nourished with manure. The moral he drew was, that the government might be properly urged to promote cotton cultivation in the waste lands of the central provinces, and especially along the foot of the Bhootan hills, which we had recently acquired. He thought it was a reasonable suggestion that the government should begin, though it was late in the day, with cotton as they did twenty years ago with tea. With regard to the American planters sent to India, he recollected seeing them there, and he believed they failed from two causes. It was said it was predetermined that they should not succeed, and that they were not the most competent men. The principal settlement was Bundilcund, where the climate was very dry, and there was no rain till June or July. In the Terai there were showers from March, and the seed-time was in February. The consequence was the plants got the benefit of the rain and grew rapidly. He believed the experiment was not tried at the foot of the hills, but principally in Bundilcund. He entirely agreed with the admirable suggestion of Mr. Bazley, that further attempts should be made by the government to improve the cultivation of cotton, by placing it under the superintendence of persons practically versed in agricultural and horticultural science.

Dr. Burn said, having spent 32 years of his life in India, and having had the charge of the American planters referred to, he had large opportunities of inquiring into this subject, with regard to the increased production and improved quality of Indian cotton. The East India Company had been at work for upwards of 50 years trying to grow cotton, by all manner of means, and all kinds of experiments, and with the assistance of all kinds of men. He believed they had spent upwards of a million of money in those experiments in the last 50 years, and the results had been, as the hon. member for Manchester said, almost *nil*. They still continued to receive almost the same quality of cotton from India, though improvement was spoken of, which no doubt proceeded from improved agriculture. The natives of India were a most wonderful race of people. They were vastly superior to the slaves of the United States, and they were altogether a class of people that England ought to take the greatest care of, because while almost all the races capable of working in hot climates were dying out, these men were able to labour in India and to cultivate the products of tropical climates to an advantage, without risking the sacrifice of European life. He would further remark that the cotton-plant of India was a totally different plant to that of America, both in habits and product. The American plant grows rapidly under a nearly tropical sun with constant showers of rain, which continued during nearly the whole growth of the plant. The best quality of cotton was grown in Western India, and the straight lines of the plants in the cotton-fields at Broach were something wonderful to look upon, and the ryots of that part of the country were famous for their knowledge of agriculture; they had a thorough appreciation of the value of manure and rotation of crops. It was wonderful to find this knowledge in men who had no education in such matters, except what they derived from their forefathers. He believed the produce of the Broach plantations was quite equal to 400 lbs. per acre, and was of a staple which he was sure Mr. Bazley would approve of, and adapted to half the looms of Manchester. Having contrasted the produce of agriculture in this country fifty years ago with what it is at the present time, Dr. Burn, in conclusion, remarked that he approved of the idea of instructing the natives of India in the principles of agriculture, and bringing under their notice improved implements of agriculture. He thought it was a mistake to look to irrigation as the salvation of India. It would, no doubt, tend to mitigate the miseries of famines, but would not wholly prevent them. The only safeguard against such visitations was that adopted by the natives of former days, viz., by the storing of two years' supply of grain and water, as well as the same amount of fodder for their cattle, because it was very rare that dearth of grain occurred in that country in two consecutive years.

The Chairman, in closing the discussion, remarked that he was gratified to find, from the observations that had been made, a confirmation of the views he had expressed in his opening remarks, that private effort in this country would not succeed in improving either the quantity or the quality of cotton grown in India. It could only be done by the instrumentality of the government there; and, as he endeavoured to point out, in all eastern countries they could not carry out the doctrine of political economy. The people of all eastern countries were dependent upon the government to initiate any improvement and its adoption amongst them. If that principle was a sound one, it ought long ago to have been put in operation by the government of India, but especially so at a time when the Cotton Supply Association began its labours and pressed the subject upon them. He regarded it as a fortunate circumstance that the Association commenced its labours before the American war broke out. They were then in possession of information from every part of the globe, and it was singular enough to find that, though in various parts of the world the climate was not quite equal to America for the growth of cotton, yet in every country except India there was the stumbling-block of the want of labour, by means of which materially to extend the cultivation of cotton. When we came to India, we find there two remarkable things which should not be forgotten—first, that they grew the most inferior cotton on the face of the earth; and secondly, they grew the least quantity per acre. How were they to alter these two things? They were told by Sir Charles Wood to get up a cotton company and go out to India. As he showed at the time, supposing they had taken up the waste lands which were offered them, they could only have grown a specific quantity, which might have come within the limits of the company; but they had the whole community of the cotton trade in want of cotton, and what little the company could do would be nothing; whereas, if the government brought its influence to bear upon hundreds of thousands of cultivators throughout the country—an influence which would have raised the produce from 60lbs. to 120lbs. or 200lbs. per acre—the whole of the work would have been done. How was that influence to be brought to bear? It had been shown that the introduction of American seed into India had been the cause of introducing a new quality of cotton in Dharwar. The quality was improved. The seeds of that plant were carried into Kandeish, and there was a vast improvement in the produce there. What they wanted the government to do, and what they had promised time after time for years to do, was to give instructions on this subject to the collectors of every district where cotton was cultivated, to stimulate them to it by increased salary or civil distinction, and then the work would be done as in the case of Mr. Shaw and Mr. Ashburner. If they found that the collectors were so much occupied with their present duties that they would not undertake others, it was urged upon the Government that they should appoint cotton commissioners charged with this specific duty. They could get nothing from Sir Charles Wood, but they pressed upon him the difficulties with regard to Bombay. There was actually no tenure of land; there was no protection of the rights of the ryot; and he was driven to the thirty years' tenure. Then they found there were neither roads nor railways; and he assured the meeting, from his personal labours in that office, nearly every railway in India had been forced most unwillingly upon the government. Then they asked that there should be an agricultural department of the government, not confined to cotton alone, but embracing the whole agriculture of the country. Look what had occurred within the last three weeks, in consequence of the absence of such a provision. The Cotton Supply Association received a letter stating that the seed in Kandeish had failed through drought, and unless £10,000 was provided for the purchase of fresh seed in other parts of the country, they could not cultivate cotton for the forthcoming year. This matter was represented to the Duke of Argyll, and when he ascertained what the state of things was, he telegraphed to the government at Bombay, directing that sum of money to be paid over to Mr. Ashburner for the purchase of seed. It was said at the last meeting the cotton interest had not stated what it was they wanted. He replied, first, cotton commissioners; then they wanted them to plant in some districts exotic seed, and in others indigenous seed; then they asked them to introduce the most improved descriptions of agricultural implements. The Cotton Association had, at its own cost, sent out manures and fertilisers to have them tried. Look at the predicament they were in. There was no public officer in Bombay to receive them, and it was only through Messrs. Peel, Cassels, and Co. that they were sent to Mr. Ashburner to be distributed by him to such cultivators as he could get hold of. At this moment there were thousands of operatives in Lancashire willing to work; they could not work; many of the mills were closed. Hundreds had taken ship from Liverpool, to transfer their experience and their labour and energy to the States of America. All this he laid at the door of the Indian government, boldly and openly. The only pressure put upon them had been a long official letter, recounting the failures of those American planters who were thought to be dead and buried. The exceptional thing the government had done was to appoint two cotton commissioners and four gardeners, and this latter petty cost was all they had done to preserve a trade which was now thirty millions per annum, and he saw no reason why it should not be forty or fifty millions. He could not talk calmly on such a state of things when his thoughts turned to the thousands of operatives at this moment suffering from the diminution of labour; he hoped some of his friends in Parliament would not let the session pass without bringing public opinion to bear upon the state of things described.

Mr. J. C. Wilson writes on this subject as follows:—"I cannot help remarking, in a few words, upon the position which it seems to me the Indian government occupies upon this question. That position is this:—Its members say to us, 'We recognise the importance of your question; we are willing to assist you, but what can we do?' Is that, I ask, a position which is worthy of a government which professedly represents the intelligence of a nation? It is surely deplorable to be told, as we have been told by Mr. Bazley, Mr. Cheetham, Mr. Smith, and Mr. Cassels, that they — gentlemen representing the cotton interest of this country, one of its most important trades—have been vainly knocking at the door of the Indian administration for the past fifteen years, seeking to gain an entrance into its councils, for the purpose of inducing it to take real action in this matter of improving and extending the cultivation and supply of cotton in India, a matter which, if skilfully pursued, must end by unfolding a perfect mine of wealth to the country, seeing that, whereas there is only grown there at present from 40 to 50 lbs. of clean cotton per acre, there might be grown, under intelligent direction, from 300 to 500 lbs., this increased quantity being simultaneous with improved quality, and therefore of many times increased value. Surely, a government, which is really a government of India, ought not to require even any external pressure to induce it to take up that which I will venture to call its proper position, viz., the lead in such a matter. Now, what is the cause of this supreme unwillingness to deal with this and similar questions? We have such a very patent effect, there must be of necessity an equally potent cause. I think, and I say it with sentiments of respect, and without wishing to raise a class question, that it is to be found in this fact, viz., that the functionaries of government in this country, and more especially in that of India, are drawn too much from the upper classes of society—classes which, however estimable in themselves, have not had that education, in an experience of the pursuits of trade, which alone gives intimate and special knowledge and familiarity with its subjects, such as to enable a man to enter confidently upon the path of progress and reform, and courageously encounter those difficulties which are certain to be found there, and with genius and skill overcome them. This being the case, what is the remedy? What would Mr. Bazley do, if he wanted to improve the cultivation and supply of cotton upon a property of his own in India? He would not attempt to fumble with the matter himself, but would create a department specially charged with the duties of that particular business, and put an able man at the head of it, to act under his inspiration. Is that not also the clear cause which the Indian government ought to pursue? Supposing such a department created—viz., a government trade department for the cultivation and supply of cotton in India (under a Minister of Agriculture, it may be), with its head-quarters say at Bombay, and ramifications throughout all the cotton-producing districts of the country, what would be the results which might be fairly expected to follow? The position of the Indian government would be at once improved, for it would be recognised to have taken an important step towards the solution of this pressing problem; the cotton interests of this country would be satisfied, for they would find themselves in direct communication with a central agency of their own in India, open to their advice, and ready and able to disseminate their views and wishes, hints and experiences, throughout that vast country; and the growers of cotton might be expected to rejoice in finding an organisation established also for their benefit, instead of the distraction and uncertainty which now prevail. They would very soon find out that they were free to resort to it for information and advice, and all questions relating to manures, implements, and seed would quickly come under its notice. Indeed, I can see it might be possible to make this institution self-supporting. But it must always be under government control, in order to give it unity, strength, and authority; and because it is essentially a revenue department, not for its collection merely, but for its creation. It might have the very important duty to perform of reporting to the higher powers of government what public works were found to be necessary in its practice or experience (such as roads, railways, canals, or improved river navigation), for the purpose of promoting the supply of cotton by means of cheaper carriage alone. And there is the question of irrigation. In truth, if presided over by men well-acquainted with their business, such a department might very soon be engrossed in most useful work. And is it not really needed? We have lately heard it argued in the Society's rooms by a late governor of Madras, an able and eminent man in his way, that because a cast-iron wheel of a threshing machine, when broken, could not be quickly or certainly replaced at present in the country districts of India therefore, it was undesirable and impolitic to encourage the importation of agricultural machinery into that country. To anyone acquainted with the subject, it would seem more intelligent to say that all machinery likely to be beneficial to India ought to be imported, and if village foundries are required to execute repairs, let them be by all means established. They would constitute another industry, if only in the first instance for repairs. Further, we have been told by some of the officials of government in India that they are already overburdened with the number of their duties, and each of them is yearly increasing in amount with the increase of population, &c.; another good reason why they should not be called upon to undertake those duties which relate to this trade matter, with which they are comparatively unacquainted. I feel, if these Indian Conferences that have been held under the auspices of the Society, should result in nothing more than the establishment of these trade departments in the government of India—not for cotton alone, but for other fibres, also for silk, oils, tea, and coffee—they will have done much good both to this country and to India; and we shall have once more exhibited to the world that we are not a nation of talkers, nor yet of dreamers, but of determined, practical, and progressive Englishmen.

Meeting.

On Monday afternoon, the 5th instant, at 4 o'clock, p.m., a meeting took place in the Society's Room, when a paper "On the Limits to be placed upon Posthumous Dispositions to Public Uses," was read before the members of this Society, and the members of the Association for the Promotion of Social Science, by Arthur Hobhouse, Esq., Q.C. The Right Hon. Lord Stanley, M.P., presided, and a discussion ensued, which was adjourned to this (Friday) morning, the 9th instant, at 11 a.m., to be re-opened by Mr. Edwin Chadwick, C.B.

A report of the paper and discussion will appear in next week's *Journal.*

TRAINING OF CHILDREN IN SCHOOLS UNDER THE POOR-LAW BOARD.

On Saturday, the 3rd inst., a considerable party of ladies and gentlemen, at the instance of the Council of the Society of Arts, visited the North Surrey District School, at Anerley, for the purpose of witnessing the results of a system of mixed mental, physical, and industrial instruction, imparted on the half-time principle, and which is now common to several of the schools for metropolitan children established under the Poor-law Board.

Amongst those present were Earl Fortescue, the Right Hon. Wm. Cowper and Mrs. Cowper, Lady Wharncliffe, Lady Tankerville, the Hon. Auberon Herbert, General Eardley Wilmot and Mrs. Wilmot, Admiral Ryder, Mr. Henry Cole, C.B., and Mrs. Cole, Mr. Edwin Chadwick, C.B., Mr. Peter McLagan, M.P., the Rev. Thos. Helmore, Mr. E. Carleton Tufnell, Mr. and Mrs. J. G. Fitch, Mr. James T. Ware, Dr. Pick, Mr. Hyde Clarke, Mr. Samuel Redgrave, Mr. C. Vignoles, Mr. Botly, Mr. G. C. T. Bartley, the Secretary and Assistant Secretary of the Society of Arts, &c.

The programme of the arrangements, as carried out, was as follows:—

11.0—Inspection of children's drawings in the board-room.

11.15.—Drill and exercises in the school-yard. Military band and marches until 12 o'clock.

12.0.—March to dinner. Singing, &c. Visitors' inspection of the bed-rooms, kitchen, &c.

1.0.—Choral singing, and instrumental music by the band in the hall, recitations, including a representation of a debate in the House of Commons, given by the boys.

2.0.—Children in school, where they were examined in mental arithmetic and geography.

2.30.—The boys of the Lambeth School, a similar institution, marched into the grounds, and were drilled separately.

The following explanation of the objects of the visit, kindly furnished by Mr. Edwin Chadwick, C.B., was circulated with the cards of invitation:—

The object of the invitation is to present for consideration an example of mixed mental and physical and industrial training, imparted on the half school-time principle of instruction,—showing practically how much can be imparted by an improved school organisation, within the eleventh year, or by the time children of the wage-classes are usually required by their parents to leave school for some productive occupation.

The school is one of a class of schools of districts of poor-law unions, to which are sent orphan and destitute children, chargeable upon the poor-rates. The class of children are of the most unfortunate, and of the lowest of the community—generally born amidst filth and squalor, and under the worst moral and physical conditions. Nearly half of them, as brought in, require immediate medical treatment, and some are brought in in such a condition as only to die. As a class, they have been commonly as difficult to teach as to rear. They are of stunted growth, and, even when they have had a military training, and volunteer for the military service, only a small proportion are found to come up to the military standard. Since, however, the sanitary conditions of the common lodging-houses, where numbers of them are born, have been improved, under Lord Shaftesbury's Act, and since the like sanitary improvements have been extended to others of the low tenements from whence this class of children chiefly come, it has been noticed that the proportion of the decrepit has diminished, that the children are of a less repulsive type, and of an improved physical and mental standard.

When the children admitted are freed from pronounced disease, or when they are of moderately good health, the effect of the improved sanitary conditions under which they are placed, of sufficient wholesome food, improved ventilation, personal cleanliness, frequent head-to-foot ablutions, clean body-linen, and physical training and exercise in the open air, is remarkable. The spontaneous children's diseases (except, indeed, ophthalmia, which remains to be dealt with) are almost banished, and they have a higher degree of health than the children of the independent poor, or than those of the general community. The death-rate of the children of the same ages of the general community is about ten per cent., but —except those who may be called the hospital children, and those who are brought in to die—the death-rate amongst the children of this institution has not exceeded two per cent.

The physical and industrial training begins in the exercises of the infant school, then afterwards, at about the ninth year, they have the military drill and school gymnastics, and exercises of the hand and eye in elementary drawing; the voice is also exercised in singing. As the orphan children have not the advantages of any of those small but important manual occupations which are found in decent homes, and which contribute aptitudes for productive work, neither have they regular manual work, such as factory children who come to half-time schools are engaged in—preparatory exercises are therefore given to boys in carpentering, tailoring, shoe-making, in attending the steam-engine; and to girls in washing, cooking, sewing, and household work. Instrumental music is taught to the most apt boys as a means of occupation in army bands, which have been largely supplied from these schools, as well as a means for the discipline of the school. This course of physical training of hands, arms, eyes, and legs, gives aptitudes for *all* industrial occupations, and beginning in the infant school, and going on with elementary drawing, is an exercise of the mental habits of attention. In the military drill, it is an exercise in habits of attention, and moral and industrial aptitudes, and in all that is implied in the term discipline—self-restraint, silence when under orders—patience—prompt attention, and prompt and exact obedience. For industrial occupations it prepares them for combined order, to act together, to move together, to lift together. This manual exercise is found practically to impart to four the efficiency of five, even with the ordinary drill; and with special gymnastics superadded to that drill, the efficiency of five, for all purposes of ordinary civil labour, is imparted to three. The example, in an intellectual point of view, presented by this and the same class of educational institutions, appears to be of primary importance for the question of national education, and especially of technical education, to which the attention of the Society of Arts has been of late so much directed.

It is admitted on all hands that an improved technical education, and an improved superior education of any sort, must be based upon an improved national elementary education. Of the schools for elementary instruction throughout the country, it has been stated on wide observation by the Rev. Mr. Fraser, the school inspector, that about one-third of them, according to common standards, are tolerably good, about one-third are indifferent, and one-third are positively bad. But in the best of the common parochial schools it takes about seven years, beginning from the sixth to the seventh year, to impart fairly reading, writing, and arithmetic alone, by five or six hours of daily school attendance, up to the thirteenth or the fourteenth year. Children of the wage-classes are, however, taken away taught imperfectly, or half-taught, by the eleventh year; and persons of the lower middle classes cannot generally afford to leave their children beyond their thirteenth or fourteenth year, and cannot give them any additional school time for technical education of any kind. But the example presented in this institution is of an organisation of teaching power, applicable to the greater part of the country, by which better elementary instruction, in half the daily time usually devoted to it, is given in half the number of years, so as to give the wage-classes as good elementary instruction by the eleventh year as is now commonly given by the thirteenth year—and thence there may be gained for the children of the middle classes two or three years of time for technical instruction, or for special preparation for any superior instruction, and this time is gained here at a reduced expense for teaching power. The average expense of teaching power throughout the country, according to the report of the Newcastle Commission of Inquiry, was £1 9s. per head per annum. That expense was for teaching of the common low average, but teaching in a school of the general average of fifty pupils, by a trained teacher with the assistance of a pupil teacher, could not be accomplished for less than £2 per head, or £14 for the seven years' tuition. In the Anerley institution, the teaching power, by a subdivision of superior educational labour, costs only about 15s. per head per annum, or, including the infant school teaching, about £4 10s. per head for complete elementary and comparatively superior school instruction, in between three and four years after leaving the infant school. Examples of the gain of time, and improvement in the quality of the teaching, and of an extension of the range of instruction, by the aggregation of numbers, and by direct simultaneous teaching in large classes, may be presented from the aggregation of day scholars of children of the wage-classes in a union of the parish schools of Faversham, and in several large day-schools of a similar character.

The special example presented, in the instance of this institution and others of the like class is, shows the means available for getting children out of the gutters into training schools, getting them into places as servants or as productive labourers, and preventing them becoming burthens on society as mendicants, paupers, or delinquents. In the small poor-law schools formerly, and in many of the small poor-law union schools now, not more than one-third were found in places of productive industry. The great majority, or sixty per cent., "went to the bad." In this institution, and in others the like, the moral failures of those reared in them from infancy

APPENDIX.

ADMINISTRATION OF FUNDS FOR EDUCATION.

Table Illustrative of School Organizations for the Augmentation of Efficiency with Reduction of Expense.

[In this Table—which has been prepared on request by Mr. T. P. Allen, an experienced and skilful teacher who had charge, under Earl Russell, of an Elementary School at Petersham—it is assumed that the pupils enter school at seven years of age. At the end of the several periods mentioned in the third column, they would write a clear hand, and would read intelligently, and would be capable of passing with credit the ordinary Examinations in Arithmetic approved by the Privy Council; they would have thoroughly mastered the usual rules, including Proportion, as far as Decimal Fractions inclusive.]

No. of Scholars.	Annual Cost per Head.				Time of Teaching.	Total Cost per Head.
		£	s.	d.		
40	Master and Mistress*	70	0	0	6 to 7 years	About £16 10 0
	Monitor	2	10	0		
	Expenses†	10	0	0		
	House Rent‡	20	0	0		
	Annual Cost per Head	£2	11	3		
70	Master and Mistress..	75	0	0	7 years§	About £12 10 0
	One Pupil Teacher	15	0	0		
	Expenses	15	0	0		
	House Rent	20	0	0		
	Annual Cost per Head	£1	15	6		
120	Master and Mistress	105	0	0	6 years	About £9 0 0
	Two Pupil Teachers..	30	0	0		
	Expenses	25	0	0		
	House Rent	25	0	0		
	Annual Cost per Head	£1	10	10		
200	Master	135	0	0	5 years	About £6 0 0
	Four Pupil Teachers..	60	0	0		
	Expenses	35	0	0		
	Annual Cost per Head	£1	3	0		
400	Master	185	0	0	4 years	About £4 0 0
	One Assistant	70	0	0		
	Six Pupil Teachers	90	0	0		
	Expenses	55	0	0		
	Annual Cost per Head	£1	0	0		
700	Master	240	0	0	3 to 4 years	Nearly £4 0 0
	First Assistant	110	0	0		
	Second Assistant	70	0	0		
	Twelve Pupil Teachers	180	0	0		
	Expenses	100	0	0		
	Annual Cost per Head	£1	0	0		

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* It will be seen that no mistress is allowed when the number of scholars exceeds 120. In those cases separate establishments are maintained for boys and girls.

† By Expenses is meant disbursements for Stationery, Cleaning, Repairs, &c.

‡ Small Schools, especially in the case of the so-called National Schools, are usually provided with teachers' residences. In estimating cost, therefore, in the small schools, we must include a fair per centage (£5) upon the capital employed in the construction of the residence, the teacher's income being affected to the full extent of the supposed rental.

§ A school of 70 is perhaps rather more obstructive to progress than one of 40. In the latter, though the organization is necessarily very imperfect, the surveillance of the master can be more readily directed to every individual. In much larger collections this advantage in favour of a small number is much more than counterbalanced by the constant general supervision of the master, by the aptitude and intelligence of his subordinates, &c.

who are not bodily or mentally disabled—that is to say, the failures to get into a place and keep it—failures that disqualify them for respectable employment, are found not to exceed three per cent. This is known from the visits of the chaplain, whose duty it is to visit them in their places for the first two years, and to see how they get on. The orphan children of soldiers and camp followers have formed a large contingent of the mendicant classes. The Military Orphan Asylum at Chelsea, and the Royal Hibernian School in Dublin, for the children of soldiers, are schools of mixed physical, industrial, and mental training, like this, on the half-time principle;—and as the inquiries as to the outcome of each are carried further into the after-life of the children who volunteer for the army, the following return of the outcome of the latter school may be presented as statistics of results generally obtainable for civil life, as well as for military service—many of the pupil teachers, certificated teachers, and others who have matriculated at the London University, having come from these institutions.

"The following table is an epitome of a return drawn up from reports received from the several regiments to which the boys of the institution have volunteered. Of 521 children trained in the schools, and afterwards enlisted in the army, 6 have by their conduct and talents raised themselves to the grade of commissioned officers. Less than 3 per cent. are classed as bad characters, and only 6 per cent. as indifferent."

Rank.	
Officers	6
Staff Serjeants	2
Colour Serjeants	5
Band Masters	2
Serjeants	35
Drum and Trumpet Majors	10
Corporals and Bombardiers	42
Drummers	164
Privates	255
Total	521

Character.	
Exemplary	28
Very good	149
Good	304
Indifferent	31
Bad	12
Very bad	0
Total	521

A large majority of the boys who enlist for the army are placed in regimental bands.

There is no doubt that, by a legitimate application of compulsory powers to juvenile mendicants and vagrants, who constitute the seed-plots of the adult criminal population, they might be converted, as in these institutions, into good subjects.

One collateral object of the exhibition at the Anerley school is to show that the introduction of military drill and gymnastics into schools, besides the distinct advantages of bodily training for civil service, offers important national advantages for the military service of the country. It enables the transference of a large part of military training from the productive adult stages to the non-productive infantile or juvenile stages of life. It converts that portion of military training from a burden into an economical advantage. It augments the efficiency of labour and the productive power of the country. It creates a predisposition to a higher order of volunteering and recruiting for the army, now much needed. Experienced drill-masters declare that they can begin to teach the children to walk, and to practise motions, at from five to six years of age, and can impart before the eleventh year a drill with permanent effect, such as is seldom if ever attained in after-years, when the limbs are stiffened, and the habits more fixed. It is found that one drill-master can drill and exercise about 500 boys. Throughout the country, in the day-schools, about 130 boys might be trained well at the ordinary expense of keeping and training one militia-man comparatively ill. At the Stepney half-time school, naval exercises with a mast and sails have been practised with great advantage, and they are found to be a beneficial preparation for the sea service, that might, with much economy, be introduced in school unions in seaport towns. Swimming is also taught in the summer at a trifling charge, with much sanitary benefit, and may generally form part of such a national system of physical training.

The notice of patronesses and committee of the Ladies' Sanitary Association, and of other lady visitors is solicited to the training of the female children.

The following remarks were made in presence of the visitors by Mr. Carleton Tufnell, the Government Inspector of the schools:—

"Before seeing the arrangements of the school, it may be useful to explain what you are invited here to see. You must not expect to see fine, well-grown children. All who are admitted here come from the lowest class, generally born amidst filth and squalor, and under the worst moral and physical conditions. You will see proofs of their origin in their countenances. They are all, you will observe, of stunted growth, the results of the hardships and privations they have had to endure previously to entering this school; in fact, their low stature and physical defects are the chief obstacles we have to surmount in preparing them for the business of life. You will see here the products of the lowest London life, and I don't believe England can furnish a worse material than what supplies these schools, and you are asked to witness what this system effects in reforming this unpromising material. Their mental instruction is pushed further here than in ordinary village schools, as will be proved to you by their examination, but you will not think that too much time is devoted to it when I state that, this being a half-time school, only 18 hours weekly are employed in book-learning, the rest of their time being taken up in physical and industrial work. Music is cultivated to a considerable extent, both vocal and instrumental. All are taught singing, all the male pupil teachers are taught to play the organ, and about 60 boys, who form the band, are taught to play, mostly on brass instruments, under an efficient band-master. This instrumental music is entirely industrial, that is, it is intended to prepare those engaged in it to gain their future livelihood. The pupil teachers turn into schoolmasters, and the band boys are enlisted, when old enough, into regimental and naval bands. The metropolitan schools under my inspection now furnish about 200 musicians yearly to the Royal service. This musical instruction has also an important moral influence on the school. We find practically that nothing has so powerful an effect in softening and humanising the rough, coarse natures of these children as music. Its effect in contributing to the order and discipline of the school cannot be overrated; and though perhaps the expense we are obliged to incur in forming the band would not be justifiable, if this instrumental music were not strictly an industry intended to prepare the boys for their future careers, still I should regret extremely to give it up, as it assists so markedly in civilising the rough specimens of humanity we have to deal with. You will have the opportunity of witnessing their proficiency both in vocal and instrumental music. Their drawings you see before you; and though I can't ask Mr. Cole, with the Kensington Museum in his mind, to praise them, I think they are such as may materially assist those who are subsequently engaged, as many of them will be, in the business of carpenters, upholsterers, and decorators. You will also witness their drilling, which is found to be extremely useful in improving the physical development, inculcating habits of prompt obedience, and, beginning as it does in the infant-school, giving them aptitudes for all industrial occupations. In fact, next to music, I think it the most powerful means of disciplining these children. Their industrial training includes shoemaking, tailoring, carpentry, gardening, baking, blacksmithery, and engineering, as there are two steam-engines on the establishment, employed chiefly in pumping water, and six boys are constantly trained to stoke and manage the steam-engines. The girls wash, scour, and make all their own clothing and the boys' shirts; the boys make their own coats, trousers, and shoes, supply all the vegetables from the grounds around, tend the cows, and make all the bread. They are bathed twice a-week in a bath large enough to swim in, which it is necessary to warm, as it is dangerous to bathe children with their feeble circulation in cold water more than two months in the year. Besides, these children, subject as they are to cutaneous disorders, require more than ordinary attention to cleanliness in order to preserve their health. Neglect on this point might cause the whole school to be laid up with ophthalmia, scald-head, or other skin diseases. You will find several children in the infirmary, mostly young ones, who have entered the school ill. But their standard of health, as indicated by the yearly mortality, is high, for the deaths never exceed two per cent., and in the past year there was not a single death. Now what is the outcome—the result of all this? I can only make this apparent by comparing it with the whole system of keeping the London pauper children in workhouses. Under that system, two-thirds of the children went "to the bad," that is, became either paupers, thieves, or prostitutes. By this system we do not lose more than three per cent., in other words, the failures in converting this class of children into honest workpeople have been reduced from 60 per cent. to 3 per cent. We learn this through the chaplain, the Rev. O. Vignoles, whose duty it is to visit the children twice a-year during the first two years of their service, and report their condition to the managers of the school. I cannot conclude without alluding to an objection to these schools which I have sometimes heard, and of which I think a noble lord present (Earl Fortescue) is a fair exponent. It has been said that we do too much for these children. You take them from the lowest class and educate them beyond their station. No labouring man can supply his children with education equal to what is given here. Now it is well known that in common day schools the children do not stay beyond ten or eleven. Here we cannot get rid of them before the age of fourteen. No one will take into service and board such physically inferior children before that age. If, then, we were to forcibly stop their education when they had learnt as much as a labourer's child gets at the age of eleven, and endeavour to stunt the mental development which begins at that age, I believe we should turn them out, friendless and parentless as they mostly are, quite unable to hold their own in the struggle for life; in fact, we should make them paupers or thieves, or worse. Such was the result in the former system of London workhouse training. A child so brought up may cost his parish £100 before he dies, or, as a thief, may plunder the community, and impose on it a loss of several hundred pounds. Thus there is a strong economical reason for the system of education established here, besides the feeling, that I trust animates most of us, that it is our Christian duty to do our utmost to raise these poor children from the miserable lot in which they have been born. But I believe that this jealousy is wholly uncalled for. I do not believe any artificial system, such as we see here, can be equal to that designed by nature, where the child is brought up under the roof of an honest and industrious parent. Sixty per cent. of these children at least are orphans or foundlings. None of them have ever known the kind nurture of the parental roof; in fact, as mournful experience shows, the greatest enemies of these poor children are their own parents. We can insure, with almost mathematical certainty, the future good conduct of the orphans. We cannot be equally sure of those who have parents. When they leave this establishment, attempts are often made by their parents or relations to lead them to vice and ruin, which we hope are mostly counteracted by the training they receive here. In truth, I do not think we do more than just give them sufficient training to ensure their safe course through the troubles and difficulties of this world, and brighten their passage to a happier world hereafter. The system pursued here is not peculiar to these schools; it is followed, with some variations, in all the London schools under the poor-law; and a neighbouring school, belonging to Lambeth, will march down here with their band at half-past two, and give you a specimen of their drill and musical capabilities."

The following additional information, relative to the origin and objects of these district schools, has been furnished by Mr. G. C. T. Bartley:—

To many persons the origin and object of these district schools, as they are called, is quite unknown, and as they are either doing a great work for good or evil on the future aspect of the country, it would be well if every person at all interested in education, and also each one who studies the great question of crime, were acquainted at least broadly with their working and success.

In the first place, everybody is aware of the fact that in each district of the country a workhouse is found for receiving the destitute under certain conditions. Among the persons who inhabit these workhouses many have children, and further, orphan and deserted children are sent as a matter of course to be there brought up. The State has provided this for centuries, and for many years she has also provided that these children should be educated, and, if possible, depauperised. Schools were formed in the union houses, but with little or no good till about the year 1838. After the New Poor-law system had come into operation, a report on the subject led to considerable alterations and improvements.

Among the suggestions in this report was one which may be considered as having been the commencement of district schools. The great object of all education and training is, of course, to make the children develop into men and women, able and willing to earn their own livelihood. While they lived in the workhouse this was found to be impossible; their associations were bad, they came out tainted with a name almost as bad as that of crime, and all the education in the world did not seem to get them out of the rut in which they had sunk by no fault of their own. It was proposed, therefore, to establish large schools of these children, by mixing together a certain number of unions, and by thus removing them from the influence of the habitual workhouse bird, and giving them a chance in life as little associated as possible with their antecedents, or rather with the antecedents of their parents. Such institutions have since been formed, and, for want of a better name, have been called school districts.

A school district must, therefore, be understood to be a combination of several unions for the education of the pauper children who are inmates of the workhouses of those unions. Several legislative reasons have prevented their rapid increase, and there are at the present time strictly only six of these schools, situated as follows:—

1. Hanwell provides for 1,200 children.
2. Farnham „ 131 „
3. North Surrey „ 724 „
4. Reading „ 124 „
5. South-East Shropshire 165 „
6. Sutton „ 1,150 „

Several are at present either in course of erection or under the consideration of the guardians.

The management of these schools is vested in a board, which is composed of gentlemen elected by the different unions which have combined to make up the district.

The duty of this board is to look after the school, and they have not the usual parish duties to trouble them; consequently, they are, as a board, much more fitted for superintending an educational establishment than in the case of an ordinary workhouse school, where attention to the children is merely a part of the general work of the collective parish board.

Although it has been said that this board has the management of the school, this is not strictly the case, as without the Poor-law Board it has little or no power. Changes in the school of all kinds have to be referred to the Poor-law Board, and the inspector of that government department visits the school, and contributions from the public exchequer are made towards the expenses of certain teachers and other persons employed. The whole cost of the institution, with this exception, is paid by the unions in connection, in proportions varying according to the size and population of each union, and the number of children drafted from it.

Such, then, is an outline of the plan of working these district schools, and the North Surrey school district may now be briefly considered.

The district embraced by this institution, as its name implies, is that south-west of the Thames, and includes the unions of Croydon, Kingston, Lewisham, Richmond, and Wandsworth and Clapham, to which has been added Chelsea. These six unions comprise thirty-six parishes, and although there are some remarkable specimens of lowness of type in the children, yet, as a body, they are certainly superior to those in some of the other districts, as, for instance, at Hanwell. This is, no doubt, accounted for by the fact that these unions, with the exception of Chelsea, are to a certain extent rural, and the criminal element is not so strong as in the more neglected parts of the heart of the city, from which locality the children at Hanwell are chiefly imported.

When brought from the workhouse, the children, who vary in age from two to fourteen, are placed in the receiving ward, where they remain until all chance of their containing the germ of some contagious disease is ascertained. This arrangement for the health of the school is most salutary, or rather essential, for it must be remembered that these children are oftentimes in a most deplorable state, and a large per-centage have to be removed to the infirmary, and their physical powers somewhat restored, before anything in the way of mental training can be attempted.

By dint of care and attention, tepid baths, physical training, and drill, most remarkable results are obtained. Many, judging from their emaciated appearance, it might be supposed only entered the school to die, yet it is a fact that out of the 800 children who are now on the books—for the school is over full—there have only occurred three deaths during the last twenty-two months.

Such, then, is the work of the school from a sanitary point of view, and this, it must be remembered, is no slight portion of its work, for, even if it stopped here, the result would be important, as preventing the spread of the diseases which the children so often bring with them.

The course of training at the school is necessarily dependent somewhat on the health of each child. The system is entirely that of the half-time, that is, one day of six hours at mental study (this six hours of course broken by meals and recreation), and on the alternate days ten hours are devoted to physical exercise, as drill, digging, farming, carpentering, shoemaking, tailoring, music, singing, &c.

Music and singing are regarded by Mr. Tufnell, the Poor-law Inspector, as the most important means of softening these rough natures, and consequently all are taught vocal music, and those who show any taste are instructed in the use of some instrument. By this means, a large number are annually sent out to the military bands of the army. The part-singing is excellent, and no one can watch the faces of the children when all are joining in some simple song without being impressed with the truth of Mr. Tufnell's opinion of this as a humanising medium.

The drill is a great feature in the school, and to its proficiency must be attributed a large portion of the success of the children. Unaccustomed to control and the instant obedience of orders, it initiates these principles in perhaps a less galling manner than any other, and at the same time adds quickness, smartness, and tone to a regiment of boys and girls who are peculiarly deficient in these qualities.

The mental training of the children includes the usual elementary instruction in reading, writing, arithmetic, and drawing, in which branch considerable proficiency is attained, a few cases even showing that latent talent of promise lies dormant in several of these rough exteriors.

The staff of the school is, as in all such cases, appointed and paid by the board, subject to the approval of the Poor-law Board. It depends on the chaplain and superintendent to direct the working of the school, and as these officers are men of great energy and ability, as is also the head master, the work is performed in a highly satisfactory manner.

In addition to the head master and mistress, there is an assistant to each, and seven pupil-teachers, together with all the staff of mechanics and industrial teachers necessary for instructing and directing the children in their various physical occupations.

During the last few months a discussion has taken place concerning the advisability of discontinuing the present system of pupil-teachers, who rise from the children in the schools, and appointing in their place a smaller number of assistant masters and mistresses. The chaplain, in a letter addressed to the board, and published by it, gives strong reasons in favour of continuing the present system, whilst the clerk to the board urges a change, on account of its economy and efficiency. It would seem probable that the right course would be to continue the pupil-teacher system, modified as explained in the superintendent's letter, also published by the board, this modification, which has been tried at Hanwell with success, being to take the pupil-teachers from a superior class, such as the children of the officers in the institution or tradesmen in the neighbourhood, and not select them from the regular inmates of the school. These children are softer in manner, have the advantages of parents' and home influence, and are not so likely as the district school child to be despotic and tyrannical when given a little authority.

The cost of the schools is a point which enters largely into the minds of all who are interested in the scheme of reforming pauper children, and, as nearly all is paid directly by the unions, these bodies keep a jealous watch over the details. In spite of this, it is a fact that in most cases more is spent than should be, this particular school costing the ratepayers about £20 per head per annum, while the one at Hanwell costs about half as much again. By very careful management it seems possible to reduce this lower sum about 25 per cent., as has been done in a large school of a somewhat similar description at Liverpool.

Finally, the result of these schools must be considered in balancing their actions. Under the old workhouse-school plan very nearly all the children returned to the gaol or the parish; in fact, they often learned their business as thieves in the recreation time between their school hours. The returns kept from these district schools, however, show a different result. It has already been mentioned that every child is kept on the books for at least two years after leaving, and is visited by the chaplain, who finds that the number who go wrong is remarkably small.

Such, then, is a brief outline of the origin and working of the school district system, and few will probably doubt of its success after personally investigating any one of these institutions. Were it extended so as to embrace the 300,000 pauper children under sixteen years of age who are at this moment growing up in England and Wales without any sort of training or teaching, it must create social changes greater and more lasting than it is easy to appreciate.

Commerce.

Commerce of France.—The official accounts of the outer trade of France, during the first four months of the present year, exhibit the following results:—The imports amount to 934, against 1,068, millions of francs in 1868, which latter is superior to the amount of any other year. The imports of 1868 were largely increased by the demand for cereals; these being deducted, leave a total of only 894 millions, or 40 millions less than the total of the four months of the present year. The exports of the same period amounted to 1,052 millions, being 151 millions more than those of 1868, but 100 millions less than in 1866. Examining the items of the accounts, we find that less meat and bread-stuffs came into the country this year than in 1868; raw materials were almost precisely the same, while manufactured products show an excess of 17 millions of francs. This excess was made up principally of silk, woollen, cotton, and other tissues, and straw plait and hats. The increase in the exports was made up of manufactured articles and agricultural products in nearly equal quantities. Textile fabrics, prepared skins, tools, and several other items show progress, some of them in a remarkable degree; thus articles of fashion and artificial flowers show an increase of 500 per cent. since 1861. Wine shows a large increase, the exports amounting to 108 million francs this year. Butter, eggs, hops, and some other agricultural products also show a large excess. The precious metals show an import of 220 millions against an export of 147 million francs. The indirect taxes show an increase of six million francs in the four months — the customs showing an increase of two millions; the taxes on fermented liquors, four millions; and tobacco, two millions; while the tax on home-made sugar shows a diminution to the extent of two millions. But the income from French and foreign sugars, taken together, amounted this year to 35 millions, against 34 millions in 1868.

Colonies.

Public Works in New South Wales. — Some important public works to be carried out in the neighbourhood of Sydney have been sanctioned by the Colonial Parliament. Perhaps the most noteworthy of these is the construction of a railway wharf at the head of Darling Harbour. The sum of £25,000 has been voted for this work, with an additional £10,000 which will be required for steam-cranes, &c. It is intended that the front pier supporting the wharf shall be tubular cast iron screw piles, those at the back being of wood. When the work is finished it is expected that it will place at the disposal of government from 16 to 18 acres of land, which will be available for railway and other purposes. At present the railway is about a mile from the principal wharf of the city, and there are no facilities for immediate trans-shipment of goods to the railway. When, however, this work is finished, the produce of the southern and western interior may be brought by railway direct to the seaboard, and, on the other hand, the consignments of goods arriving at Sydney for the country will be forwarded direct to their destination, without the damage, delay, and expense of cartage through the city. The increased trade which the completion of the present lines of railway may be expected to bring to the city, will make this wharf accommodation of the utmost value.

Flax in New Zealand.—A Nelson paper says:—"The general depression of affairs in New Zealand is inducing persons to turn their attention to long-neglected industries, which are now found to return fair remuneration to capital and labour. The foremost of these is the dressing of flax, which in Canterbury is exciting a good deal of attention, and improved machinery for preparing the fibre is likely to be introduced. Although the quantity of flax growing in Nelson is not so large as in many provinces of New Zealand, there are districts which could well find employment for a few of these machines, which are very simple in construction, and capable of turning out a large quantity of fibre, said to bring a highly remunerative price."

Notes.

The Paris Savings Bank.—The report relating to the Banque d'Epargne of Paris for the year 1868, gives a satisfactory impression of the condition or of the economy of the working classes. The amount of money in the bank on the 1st of January was 49,702,348 frs., and on the last day of the year it amounted to 52,591,933 frs.; this increase of 2,700,000 frs. was not, however, so large as that of 1867, when it reached 3,300,000 frs. The number of depositors increased in the course of 1868 from 260,750 to 266,239. The amount paid into the bank exceeded 22,000,000, nearly a million over the receipts of 1867, and the number of new accounts opened was 37,393, or 2,254 more than in the preceding year, while the average of the deposits rose from 86 to 92 francs. The number of accounts closed was 30,934, less by 6,459 than than that of new ones opened. The interest on deposits amounted during the year to 1,613,762 francs. The population of Paris is 1,800,000; and dividing by this number, we find the amount in the savings bank to have been equal to about 23s. 4d. per head of the entire population, and the deposits during the year to nearly 10s. per head; comparing, however, the amounts in the bank at the beginning and end of 1868, the increase is only equal to about 16d. per head on the average. The Emperor has appointed a commission to inquire into the best means of extending and improving the Banque d'Epargne; and the directors propose that a higher maximum than the present one of 1,000 francs shall be allowed to depositors.

Paris Omnibus Company.—The report of the Paris Omnibus Company for the year 1868 gives the following information:—The company employed 694 carriages, of which 682 ran over a distance of rather more than 57 miles a-day on an average, and of which the receipts amounted to £3 7s. per day. The average number of horses in the stables was 8,227; each omnibus employed twelve horses per day, and each pair of horses performed a distance of ten miles within a fraction. The number of passengers carried during the year was 113,348,041; of these 50,000,000 rode outside, and upwards of 64,000,000 inside; 18,500,000 took advantage of the system of correspondence tickets. The company possesses 43 depots and four building establishments. There are thirty-two lines of omnibuses, of which one quarter do not cover their expenses. The controllers, conductors, and drivers are paid according to a scale which rises with time of service. The controllers are divided into three classes, and receive from £48 to £80 a-year; the conductors and drivers receive each 4 francs a-day during the first year, 4 fr. 25c. for the second, 4fr. 50c. for the third, and 5 francs afterwards. The secret inspection to prevent fraud is said to cost the company £2,500 per annum. The expenditure of the company amounts to more than £2,000,000 sterling per annum, of which £320,000 is expended on the omnibuses and horses.

MEETING FOR THE ENSUING WEEK.

Wed ...Aeronautical, 8 (at the Society of Arts).

PARLIAMENTARY REPORTS.

SESSIONAL PRINTED PAPERS.

Par. Numb.

Delivered on 24th June, 1869.

156. Bill—Sea Fisheries Act (1868) Extension.
169. ,, Bankruptcy (as amended in Committee, and on Re-commitment).
170. ,, Sunday and Ragged Schools (amended).
171. ,, Fines and Fees Collection (amended).
276. County Financial Boards—Return.

Delivered on 25th June, 1869.

174. Bill—Suburban Commons.
176. ,, Stipendiary Magistrates (Deputies).

Delivered on 26th June, 1869.

96. Bill—Courts of Justice Salaries and Fnnds.
257. Shipping—Returns.
271. Foreign Import Duties—Return.
279. Informations, &c.—Return.
Public Petitions—Twenty-fifth Report.

Delivered on 28th June, 1869.

173. Bill—Poor Law (Ireland) Amendment (No. 2).
178. ,, Assessed Rates (as amended in Committee, and on Re-commitment).
81. (v.) Railway and Canal Bills—Sixth Report.
273. New Law Courts (Sites)—Report.
274. New Law Courts—Report.
Money Orders (Great Britain and Belgium)—Convention.

Delivered on 29th June, 1869.

175. Bill—Special and Common Juries.
179. ,, Imprisonment for Debt (as amended in Committee, and on Re-commitment).
170. Weights and Measures—Return.

Delivered on 30th June, 1869.

182. Bill—High Constables' Office Abolition (amended).
184. ,, Shipping Dues Exemption Act (1857) Amendment.
46. (iv.) Trade and Navigation Accounts (31st May, 1869).
185. Metropolitan Police—Accounts.
281. Election Commissioners—Returns.
285. Gold Currency—Report.
Public General Acts—Chap. 14 *to* 22.

Delivered on 1st July, 1869.

185. Bill—Medical Officers Superannuation (Ireland) (amended).
186. ,, Railways Abandonment.
187. ,, Pensions Commutation.
200. Hungerford-bridge and Wellington-street Viaduct—First Report and Evidence.
284. Sea Fisheries Act (1868)—Report.
Bank of Bombay—Report of the Commissioners.
Water Supply—Report of the Commissioners.
Public Petitions—Twenty-sixth Report.

Delivered on 2nd July, 1869.

278. Mortality (Barking, &c)—Returns.

Delivered on 3rd July, 1869.

189. Bill—Dublin Freemen Commission.
190. ,, Fisheries (Ireland).
167. (ii.) Trade Accounts (Foreign Countries).
283. Army (Supersession of Colonels)—Report.

Delivered on 5th July, 1869.

64. Bill—Steam Boilers Inspection.
192. ,, Local Government Supplemental (No. 2).
193. ,, Inam Lands.
251. East India (British Burmah)—Return.
275. Coventry Election—Minutes of Evidence.
Public Petitions—Twenty-seventh Report.

Patents.

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From Commissioners of Patents' Journal, July 2.

Grants of Provisional Protection.

Animal and vegetable substances, preserving—1893—M. Olsson.
Bands, fasteners for—1864—W. McNabb.
Boots and shoes—1867—C. and E. Brightman.
Camera obscuras, portable sketching—1913—H. T. Munns.
Carriage wheels—1900—W. R. Lake.
Carriages, axle-boxes for the wheels of—1876—G. Molland.
Cereals, &c., treating—1897—A. Manbré.
Cloth, &c , rendering waterproof—1903—J. Martin.
Cooking ranges, &c.—1875—J. Napier.
Drilling machines—795—W. R. Lake.
Fire-arms, &c.—893—F. J. Manceaux.
Furnaces—1901—T. F. Cashin and J. Green.
Furnaces, supplying with fuel—1910—R. R. Kelly.
Gas regulators—1922—H. A. F. Duckham.
Glass, &c.—1825—P. Jensen.
Grain, drying, &c.—1895—A. J. Glas.
Hammers for forging metals, &c.—1781—H. W. Hammond.
Hydraulic or steam cranes—1898—P. G. B. Westmacott.
Indigo presses, &c.—1892—R. Olpherts.
Iron and steel—1890—E. H. C. Monckton.
Kettles, &c., handles of—1877—W. Topham, jun., and S. Wells, jun.
Lamp shades, &c.—1872—J. G. Tongue.
Land, machinery for tilling—1891—S. Nicholls.
Letter-printing machinery—1831—F. C. Bakewell.
Letters, &c., device for holding—1881—T. Silver.
Locks and latches—1878—M. Andrew.
Locomotion, mechanism applicable to—1894—W. Pidding.
Looms—1882—J. Bullough and C. Catlow.
Mail bags, &c.—1863—J. Harding.
Microscopes, binocular and stereoscopic—1883—S. Holmes.
Mines, &c., apparatus for indicating signals in—1904—G. Musgrove.
Mortising machines—1829—M. Benson.
Paper, &c., treating wood for obtaining fibre for the manufacture of—1790—G. Fry.
Picks, adzes, &c.—1865—J. H. Johnson.
Ploughs—1907—J. C. Norman.
Railway carriages, apparatus for moving—1880—E. Haas and V. Wanostrocht.
Safety lamps—1921—A. M. Clark.
Semaphore signals, &c.—1902—C. D. Abel.
Sewing machines—1751—F. Hohmann.
Ships—1854—E. Cardon.
Ships, &c.—1679—D. Evans.
Ships, &c., affixing sheathing to—1896—B. Bell.
Show cases and fancy boxes—1886—H. Bauerrichter.
Steam engines—1899—W. R. Lake.
Steam generators, injectors for feeding—1916—J. H. Johnson.
Steam rollers, &c.—1914—R. Moreland, jun., and D. Thomson.
Stuffs, machines for callendering—1918—A. J. Deblon.
Sugar—1866—J. H. Johnson.
Throstle frames, &c., drag motion applied to—1873—I. Gregory and E. Ainsworth.
Tin plates, apparatus for cold rolling iron for—1909—J. I. Evans.
Tobacco pouches, &c.—1885—A. S. Harington.
Typographical composing and printing—1912—M. Henry.
Velocipedes—885—F. Rudrum.
Velocipedes—1871—T. Bourne.
Velocipedes—1889—F. Forder and J. Traves.
Velocipedes, &c.—1870—S. Adams.
Vessels, cleaning the bottoms of—1917—D. B. Park.
Vices—1908—G. M. Harris.
Weights and strains, apparatus for ascertaining—1887—C. E. Brooman.

Inventions with Complete Specifications Filed.

Carding engines—1929—J. Taylor, R. & J. Ingham, and J. Sharples.
Yarns, twisting—1923—R. Counce and M. G. and B. Bradley.

Patents Sealed.

24. L. Hannart.
26. W. Prosser.
27. E. W. and J. Voce.
29. J. J. Hays.
30. J. Balbirnie.
36. S. Remington.
42. K. Walter.
43. A. Tyler.
45. G. Eveleigh.
50. F. R. A. Glover.
65. M. Wilkin and J. Clark.
67. W. E. Gedge.
70. M. Saunders & H. Forrest.
118. A. M. Clark.
154. N. Voice.
159. G. R. Postlethwaite.
739. A. Moncrieff.
960. H. Y. D. Scott.
1081. R. J. Morison.
1200. H. Y. D. Scott.
1260. J. Major, W. Wright, and G. H. Jones.
1430. W. R. Lake.

From Commissioners of Patents' Journal, July 6.

Patents Sealed.

3739. G. Cooper and J. Cotterill.
60. R. Wigram.
63. T. B. Sydserff.
71. E. Gray.
80. J. Petrie.
86. C. McDougall and C. H. Eden.
89. A. P. Price.
91. Sir F. Sykes.
104. J. Schlösser.
111. T. Mortlock.
121. C. H. Lea.
146. W. Thomas.
150. W. R. Lake.
164. A. M. Clark.
186. H. A. Bonneville.
206. A. Maw.
212. W. Burgess.
246. C. Gil.
248. C. Mather.
366. C. G. Hill.
472. B. J. B. Mills.
570. W. A. Ives.
89. F. Brady.
915. W. R. Lake.
1098. J. Hynam.
1404. G. N. Mansfield.
1408. J. G. Tongue.
1409. F. C. Knowles.
1426. W. E. Newton.
1431. H. Bessemer.
1432. H. Bessemer.
1433. H. Bessemer.
1434. H. Bessemer.
1435. H. Bessemer.
1452. P. W. and W. Flower.

Patents on which the Stamp Duty of £50 has been paid.

1735. J. Imray and J. Ellis.
1775. T. Sager and T. Richmond.
1793. C. Harvey.
1880. W. Clark.
1776. J. Brotherton.
1790. C. Heptonstall.

Patents on which the Stamp Duty of £100 has been Paid.

1918. C. Lungley.
1935. G. Bedson.